# Tables

**Table 1. Evaluation of Potential Public Health Hazards at Naval Air Station Jacksonville**

| *Site* | *Site Description/Waste Disposal History* | *Site Investigations* | *Corrective Activities and/or Current Status* | *Evaluation of Public Health Hazard* |
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| ***Operable Units (OUs) at NAS Jacksonville*** | | | | |
| OU1 | This OU contains PSCs 26 and 27 in the southern portion of NAS Jacksonville. The main station housing area is adjacent to the eastern boundary of OU1. A forested area borders OU1 to the south and northwest; the station golf course borders the site to the north; a restricted weapons storage area borders OU1 to the west; and Child Street intersects the northernmost section of the OU. From the forested area along the OU's southern border, an unnamed tributary flows about 2,500 feet south to the St. Johns River. A fence restricts access from the housing area and from Child Street to OU1 and the unnamed tributary (ABB-ES 1996a).<br><br>PSC 26 is the Old Main Registered Disposal Area comprising about 40 acres. Before 1940, the Army allegedly used sections of PSC 26 for non-hazardous waste disposal. From 1940 to 1950, the Navy disposed of radium-containing paint waste and dials in the area. From 1940 to 1979, household waste, sanitary waste, discarded vehicles, construction debris, and liquid industrial wastes were disposed here. Liquid wastes were burned in open pits and covered with soil (ABB-ES 1995a, 1996a, and 1997a). Over a 40-year period, the Navy reportedly | Investigations have taken place at OU1 since 1973. In 1991, AG&M collected soil samples from 49 different areas at the OU; depending on the sample, analyses were conducted for metals, radionuclides, PCBs, and/or TPH. Also in 1991, ABB-ES began Round 1 remedial activities at the OU, which included the collection of 32 surface water and sediment samples (in OU1, around OU1, and in the St. Johns River), 159 soil samples, 32 groundwater samples, a soil gas survey, and air sampling (ABB-ES 1996a).<br><br>In 1993, ABB-ES conducted a focused RI to address light non-aqueous phase liquid (LNAPL) at OU1. This RI/FS found approximately 5,900 to 10,200 gallons of LNAPL (a petroleum product) in the shallow aquifer located north of Child Street (ABB-ES 1996a).<br><br>Round 2 RI/FS activities took place in 1995 and sampling locations were selected based on results from the 1991 sampling | In the past, there was concern that children trespassed into OU1 to play on the landfill. Though the area had previously been fenced, in 1991, the Navy installed a higher 8-foot high fence to prevent neighborhood children from accessing the landfill (ATSDR 1992).<br><br>Following the 1993 focused RI to address LNAPL at OU1, the Navy initiated an interim removal action (IRA) that included the installation of an ongoing LNAPL removal system (ABB-ES 1997a).<br><br>The 1997 ROD selected the following remedial actions for OU1 (ABB-ES 1996a):<br><br>Collect LNAPL from the shallow aquifer<br><br>Excavate selected sediment in the unnamed tributary and soil from outside the landfill; place excavated material under the landfill cap<br><br>Install a cap over the soil and debris at the landfill | Based on a review of sampling data and potential exposure scenarios, no past or current public health hazards are expected at OU1.<br><br>A fence prevents access from the housing area and Child Street to OU1. Groundwater at this OU is not used as a drinking water source.<br><br>ATSDR calculated doses for children and adults potentially exposed to surface soil and site-related sediment. Based on the concentrations detected, the doses are too low to cause adverse health effects in children or adults exposed in the past or present to surface soil or sediment.<br><br>Sampling results suggest that past exposure to OU1-related surface water could potentially have occurred via ingestion. However, a landfill cap covered surface water in the perimeter ditch at OU1 (a restricted area), fencing prohibits access to the |

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| | discarded 1,000 gallons of VOC waste each week at the OU (Jones, Edmunds, and Associates 1984 as cited in ABB-ES 1996a). In 1978, liquid wastes were found in subsurface soil; the area was closed in 1979 (ABB-ES 1995a, 1996a, and 1997a).<br><br>PSC 27—Former Transformer Storage Area—is less than 1 acre. It was used as a transformer storage area for an unknown time period. In 1978, alleged vandalism resulted in an unknown amount of transformer oil, which contained PCBs, spilling onto the ground. After the spill, the contaminated soil and transformers were moved off site (ABB-ES 1995a and 1997a).<br><br>Groundwater migrating from several identified contaminated source areas at OU1 (including the southern end of the main landfill area south of Child Street, waste disposal pit, and LNAPL area northeast of Child Street) discharges to the unnamed tributary (ABB-ES 1996a). | events. During these activities, ABB-ES collected 24 surface water and sediment (areas around OU1, not from the St. Johns River), 182 groundwater, and 2 soil samples.<br><br>Analyses of samples varied on the media and location of sample; these included VOCs, SVOCs, PCBs, pesticides, TPH, and metals. The RI considered substances for its health evaluation based on sample location (those that were related to OU1), contaminants in the groundwater plume at OU1, and other factors. ATSDR evaluated the related sample detections and the results are provided in Appendix B. In addition, the RI included a soil gas survey to assess if VOCs had moved from OU1 to the station housing area. VOCs were not detected in the residential area (ABB-ES 1996a).<br><br>ABB-ES prepared an addendum to the RI/FS in 1996 to further evaluate groundwater contamination (ABB-ES 1996b). In 2002, TtNUS resampled surface water at OU1 (TtNUS 2002b). | Allow natural attenuation of groundwater<br><br>Monitor surface water and groundwater<br><br>Enforce land-use restrictions<br><br>Conduct 5-year reviews<br><br>Remedial actions were completed in 1997 (DERP 2002). The landfill is now capped and surrounded by a fence. | unnamed tributary adjacent to OU1 (within the station housing area), and surface water sampling at OU1 in 2002 did not detect any VOCs above CVs.<br><br>Only residents who trespassed into these areas could have been exposed to OU1 surface water. These types of exposures would not be expected to result in adverse health effects.<br><br>ATSDR recommends that fencing around this tributary remain in place, surface water monitoring (for VOCs, metals, and radionuclides) should continue, and signs (if not already in place) should be posted along the fenced ditch system that runs though the station housing area.<br><br>No future public health hazards are expected as long as the landfill cap remains in place, fencing continues to prevent resident access to the unnamed tributary and OU1, signs are posted along the unnamed tributary within the station housing area, and land use does not change. |

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| OU2 | OU2 consists of six PSCs—PSC 2 (Former Firefighting Training Area [FTA]), PSC 3 (Wastewater Treatment Plant Sludge Disposal Area), PSC 4 (Pine Tree Planting Area), PSC 41 (Domestic Waste Sludge Drying Beds), PSC 42 (Wastewater Treatment Plant Effluent Polishing Pond), and PSC 43 (Industrial Waste Sludge Drying Beds). OU2 is situated in the northernmost section of NAS Jacksonville; it is bordered to the north by the St. Johns River, to the west by the Timuquana Country Club and Golf Course, and to the south and east by station runways (ABB-ES 1992, 1995b, and 1998b; HLA 1998).<br><br>Since the early 1940s, NAS Jacksonville has primarily used the area at OU2 for wastewater treatment activities. Between about 1966 and 1991, a secondary use of the site was for firefighting training exercises at the FTA. NAS Jacksonville restricts all access to station runways and taxiways to people with security clearance. Access is restricted to OU2 because of its close proximity to these areas. In addition, chain-link fencing along the station's borders and continuous security patrols prevent access to OU2 (ABB-ES 1992, 1995b, and 1998b; HLA 1998). | Prior to remedial activities, Fred C. Hart and Associates, Inc. (1983) and AG&M (1985) collected one sludge sample from PSC 3 in 1980 and three soil samples from PSC 4 in 1985, respectively. The samples were analyzed for metals. Between 1984 and 1992, AG&M, International Technology Corporation, and Environmental Science & Engineering, Inc. collected samples from 46 monitoring wells installed at OU2. Depending on the investigation, samples could have been analyzed for VOCs, SVOCs, pesticides, PCBs, metals, and/or radionuclides (ABB-ES 1992).<br><br>From 1992 to 1998, ABB-ES conducted a two-phase RI/FS to investigate all of the PSCs within OU2. Groundwater, sediment, sludge, soil, and surface water samples were collected from areas throughout the OU and analyzed for various contaminants that included VOCs, SVOCs, pesticides, PCBs, and metals (ABB-ES 1995b and 1998b). ATSDR summarized the results for the entire OU, which are presented in Appendix B. | The Navy conducted IRAs to address sediment, soil, sludge, and surface water contamination at OU2. By 1998, IRAs were completed at PSCs 2, 41, 42, and 43. Also, the Navy had removed "hot spot" areas of contaminated soil from PSCs 3 and 4, and contaminated soil and sludge from PSCs 3, 4, 41, and 43 (HLA 1998).<br><br>Following the RI/FS, PSC 2 was transferred to the state of Florida's petroleum program because petroleum-related contaminants and LNAPL were found in groundwater (HLA 1998).<br><br>Also, the ROD determined that groundwater contaminants would decrease over time since the IRAs removed OU2 contamination sources. In the 1998 ROD, the NAS Jacksonville Partnering Team determined that no further action (with a 5-year review) was appropriate for most of OU2, but that groundwater monitoring was needed for 2 to 3 years at PSCs 41, 42, and 43 (HLA 1998). | A review of sampling data and potential exposure scenarios shows that no past or current public health hazards are expected at OU2.<br><br>A chain-link fence surrounds the entire OU and security guards routinely patrol the area. In addition, only personnel and vehicles with security clearance are permitted access to OU2. The groundwater at this OU is not used as a drinking water source. Because site access is restricted, no exposures are expected to occur, and therefore no adverse health effects are expected.<br><br>ATSDR calculated doses for surface soil on the rare possibility that trespassing could occur. The detected concentrations in soil are too low to cause adverse health effects.<br><br>No future public health hazards are expected as long as the site remains restricted and land use does not change. |

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| OU3 | The 134-acre OU3 contains the following: PSC 11(Building 101), PSC 12 (Old Test Cell Building), PSC 13 (Radium Paint Disposal Pit), PSC 14 (Battery Shop Area), PSC 15 (Solvent and Paint Sludge Disposal Area), PSC 16 (Black Point Storm Sewer Discharge), PSC 48 (Station's Dry Cleaners–Building 106), PSC 54 (NADEP Cooling Basin), Building 780, Groundwater Contaminated Area A (Old Engine Cleaning Area), Groundwater Contaminated Area B (Southwest of Building 840), Groundwater Contaminated Area C (Between Hangars 122 and 123), Groundwater Contaminated Area D (West End of Jetline Hangar), Groundwater Contaminated Area E (Southern End of P3 Hangar), Groundwater Contaminated Area F (P-615 Area), and Groundwater Contaminated Area G (PSC 15). OU3 is located on the eastern side of NAS Jacksonville, south of the station's flightline. The St. Johns River borders OU3 to the south and east (HLA 2000a and 2000b).<br><br>In 1983, the IAS identified PSCs 11, 12, 13, 14, and 15 because they were associated with former NADEP operations that included the rework and maintenance of military aircraft, as well as ground equipment maintenance. The IAS identified PSC 16 because of | From 1993 to 1998, HLA conducted several investigations at OU3. During this time period, HLA collected a total of 78 on- and off-site groundwater samples and 54 on- and off-site soil samples. The on-site and off-site samples were analyzed for VOCs, pesticides, PCBs, and metals; off-site samples were also analyzed for SVOCs. In 1998, HLA collected eight surface water samples from the off-site storm sewer and analyzed them for VOCs (HLA 1999a, 1999b, and 2000b).<br><br>From April 1998 to April 1999, HLA conducted RI/FS activities at OU3. These activities included collecting 11 off-site sediment samples from the St. Johns River, 11 off-site surface water samples from the St. Johns River, 13 surface water samples from the off-site storm sewer, and 3 groundwater samples from Areas A, D, and F (1 at each area). Sediment samples were analyzed for VOCs, SVOCs, and metals; St. Johns River surface water samples were analyzed for VOCs and metals; and storm sewer samples were analyzed for VOCs. Groundwater from Area F | The 2000 ROD concluded that no further action was required at PSCs 11, 12, 13, 14, and 15. From 1997 to the present, IRAs have taken place to treat groundwater contamination at PSC 48 and Building 780 (HLA 2000a).<br><br>The ROD recommended the following:<br><br>Continuing the IRAs at PSC 48 and Building 780<br><br>Enhancing biodegradation to reduce VOC levels in Areas C and D<br><br>Chemically oxidizing contaminants in Area F<br><br>Monitoring the natural attenuation of contaminants at Areas B and G<br><br>Selectively removing tar balls from the top six inches of sediment at PSC 16<br><br>Monitoring storm sewer water following the groundwater clean up at Area F (reportedly, the groundwater plume in Area F caused the storm sewer water contamination)<br><br>Further, the preferred remedial activities included groundwater and storm sewer monitoring, | Based on a review of sampling data and potential exposure scenarios, no past or current public health hazards are expected at OU3.<br><br>A fence surrounds the entire OU and security guards monitor all site access. In addition, only NADEP personnel and authorized visitors have access to the 134-acre area. The groundwater at this OU is not used as a drinking water source. Also, people are not permitted to fish, swim, or engage in other recreational activities in the adjacent portion of the St. Johns River.<br><br>Since site access is restricted, no exposures are likely to occur, and therefore no adverse health effects are expected.<br><br>ATSDR calculated doses for soil on the rare possibility that trespassing could occur. The detected concentrations in soil are too low to cause adverse health effects.<br><br>In addition, infrequent exposure to contaminants in surface water or sediment in |

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| | repeated discharge of jet propellant fuel and oil to the St. Johns River. In 1993, PSC 48 was identified because it was related to NAS Jacksonville's dry cleaning activities (HLA 2000a and 2000b). PSC 54 was recently added to the list of contaminated sites because of spills and leaks of oily water from the cooling basin (Post-Closure Permit Application 2003).<br>Prior to 1940, a seaplane and assembly repair department operated at OU3. Since 1940, NADEP has represented the primary operations at OU3 and it is the biggest tenant command at the station. The OU consists of roads, runways, hangars, and various buildings. Buildings and concrete pavement (greater than 1-foot thick) cover more than 90% of OU3 because of the industrial and aircraft-related operations that take place in this area. Reportedly, as a result of these industrial operations, aviation fuel, paint sludge, solvents, and battery acids are some of the substances that have been disposed of or spilled at OU3 (HLA 2000a and 2000b).<br>Only NADEP personnel and authorized visitors have access to OU3. A fence surrounds the entire OU and security guards monitor all site access (HLA 2000a). | was analyzed for VOCs and metals; samples from Areas A and D were analyzed for metals (HLA 2000b).<br>In addition to activities conducted by HLA at OU3, three contractors—B&R, Burns & McDonnell, and BEI—also collected sediment samples from OU3. In 1995, B&R collected a total of three samples from the St. Johns River at 10, 50, and 100 feet from the PSC 16 outfall. In 1996, Burns & McDonnell collected two samples, and in 1999, BEI collected one sample. These three samples were used to examine the sediment quality in the storm sewer that discharges from PSC 16 to the St. Johns River (HLA 2000b). | execution and maintenance of groundwater use restrictions and land use controls, and conducting site reviews every 5 years (HLA 2000a).<br>According to NAS Jacksonville's 2003 Post-Closure Permit Application, PSC 54 is pending a clean up status decision (Post-Closure Permit Application 2003). | the adjacent portion of the St. Johns River is not expected to result in adverse health effects.<br>No future public health hazards are expected as long as the site remains restricted and land use does not change. |

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| OU4 | OU4 (also known as PSC 21) consists of Casa Linda Lake, which measures 11 acres in the central portion of NAS Jacksonville. The entire lake lies within the Naval Air Station Jacksonville Golf Course (formerly known as the Casa Linda Oaks Golf Course), on the northern end of the course. The lake is bordered to the north by open park-type areas and to the south by golf course greens and fairways. There is a small peninsula in the center of the lake that is used for the 11th green of the golf course (AG&M 1999).<br><br>The Navy uses the lake for stormwater retention and for irrigating the golf course during periods of dry weather. The lake is also a habitat for fish, ducks, birds, and other wildlife. Stormwater drains on the station empty into the lake. Water that flows over the lake and dam spills into a drainage ditch that discharges to the St. Johns River at Mulberry Cove (AG&M 1999).<br><br>On May 6, 1979, between 300 and 1,000 fish and about 12 ducks were killed at the lake as a result of the golf course's use of the pesticide fensulfothion to control a nematode problem. Because of this fish kill, the 1983 IAS identified Casa Linda Lake as a PSC (AG&M 1999).<br><br>The Navy has a station-wide catch-and-release program that prohibits the | In 1993, ABB-ES conducted sampling for an electroshocking fish investigation at NAS Jacksonville. ABB-ES collected three surface water, three sediment, seven fish filet, and four whole fish samples from Casa Linda Lake. All samples were analyzed for SVOCs, pesticides, PCBs, metals, and cyanide; surface water and sediment samples were also analyzed for VOCs (ECT 1993; TtNUS 2003b).<br><br>During remedial activities in 1997, AG&M collected 5 soil, 6 surface water, 9 groundwater, 7 sediment (from the lake), 3 whole fish, and 3 fish filet samples. All samples were analyzed for pesticides, PCBs, metals, and cyanide. Groundwater, soil, surface water, and sediment were also analyzed for SVOCs. Groundwater was the only media sampled for VOCs (AG&M 1999).<br><br>For the 1998 RI, stormwater discharge from the northwest corner of the OU was sampled as it was thought to drain the most potentially contaminated areas, and then discharge into the lake. Samples were analyzed for | In 1979, NAS Jacksonville removed the dead birds and fish from the lake and buried them off site (TtNUS 2003b).<br><br>In 2000, the final ROD for OU4 recommended a remedial alternative that consisted of (AG&M 2000):<br><br>Monitoring within NAS stormwater management guidelines<br><br>Institutional controls, including use restrictions, continued use of catch-and-release program, and advisory signs<br><br>Passive habitat controls to manage aquatic species and wildlife that live at Casa Linda Lake<br><br>As of 2003, the Navy had completed the response actions outlined in the ROD and the site was closed under CERCLA (SOUTHDIV 2003 as cited in TtNUS 2003b). | Based on a review of sampling data and potential exposure scenarios, no past or current public health hazards are expected at OU4.<br><br>The groundwater at this OU is not a drinking water source. Swimming is not permitted at the lake and golfers are not allowed to enter the lake to search for golf balls. As the banks along the lake are very steep, it is highly unlikely that anyone would wade in the water. Although people are not likely exposed to lake sediment, potential doses for sediment exposure would not be expected to result in adverse health effects.<br><br>ATSDR also estimated potential doses for soil exposure; all estimated doses are too low to result in adverse health effects. No contaminants were detected above CVs in surface water.<br><br>The Navy prohibits consuming fish caught from Casa Linda Lake through its catch-and-release program and signs are posted to notify people that potential hazards |

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| | consumption of fish from all lakes at NAS Jacksonville, including Casa Linda Lake (Beason 2004b). The Navy has also posted signs to notify people that the lake is catch-and-release only and to warn people that consuming fish from the lake could present a possible health hazard. NAS Jacksonville personnel, military personnel (active and retired), and residents and their guests are permitted to fish at Casa Linda Lake (AG&M 1999). | VOCs, SVOCs, PCBs, pesticides, and metals (AG&M 1999). | | could exist as a result of eating lake fish. If people consumed fish, they would most likely consume the filet portion of a fish.<br>ATSDR calculated potential past exposure doses based on the contaminants detected in fish from the lake in 1993 and 1997 (filet, liver/gonad, whole, and carcass). Even if adults and children consumed 8 ounces (227 g/day) and 4 ounces (114 g/day) of fish per day, respectively, for 50 days over their lifetimes, doses of contaminants would be below the lowest levels at which adverse health effects have occurred. Thus, health effects are not expected to occur from past fish consumption.<br>No future public health hazards are expected based on conservative assumptions used to evaluate exposure. For more details, refer to the *Evaluation of Environmental Contamination and Exposure Pathways* section. |

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| OU5 | OU5 contains PSC 51, which is inside the South Antenna Field (SAF) and slightly north of the station's southern border. PSC 51 includes two areas—the Former Fire Fighting Training Area (FFTA) and the former Oil Disposal Area (ODA). The FFTA and ODA measure about 60 and 50 feet in diameter, respectively. The two areas are 250 feet apart; the ODA is southeast of the FFTA (PAO 2003a; TtNUS 2002a).<br><br>In the past, the station's fire department practiced fire fighter training exercises at the FFTA. During these exercises, flammable materials were discharged onto the ground, and consequently, organic substances were released into the environment. Reportedly, the Navy used the ODA area to drain fuels, oils, and hydraulic fluids from aircraft before moving them to the DRMO (OU 7/PSC 46). Today, the ODA and FFTA are both inactive, and the Navy does not use OU5 for any purpose (PAO 2003a; TtNUS 2002a).<br><br>The SAF has a grassy field with no buildings, trees, or shrubbery. Forests border the SAF to the north and west, Allegheny Road borders the site to the east, and Patrol Road and a fence border the site to the south (also the station's southern boundary). Woods with an unnamed creek and a residential area lie on the other side of the station fence. A | In 1997, HLA collected 4 surface soil samples from the FFTA and 16 from the ODA. HLA also collected four subsurface soil samples from each area and a total of 35 groundwater samples (two were collected south of NAS property). Samples were analyzed for VOCs, SVOCs, pesticides, PCBs, and metals. Thirty-two of the groundwater samples were analyzed only for VOCs. HLA also collected one surface water and two sediment samples from the downgradient creek. These samples were analyzed for VOCs (HLA 1999c).<br><br>From 1997 to 1998, BEI conducted radiological investigations at OU5. Prior to site excavations in 1998, BEI installed two groundwater wells downgradient of the OU source areas and collected radiological samples in June, August, and October 1998. Following BEI's excavations at the ODA and FFTA in 1998, BEI collected nine post-removal soil samples and one surface water sample from each excavated area. The surface water samples were analyzed for radiological | In 1998, BEI conducted removal activities at the FFTA and ODA that included removing radioactive- and lead-contaminated soil, filling excavated areas with fresh soil, and conducting lead and radionuclide confirmatory sampling. During the excavations, about 1,000 cubic yards of radiologically-contaminated soil was removed and placed under the landfill cap at OU1. Approximately 20 cubic yards of lead-contaminated soil were removed and shipped off site for disposal (TtNUS 2002a).<br><br>Prior to the excavations, the Navy had two wells installed to monitor groundwater downgradient of the contamination source areas. In July 1999, TtNUS began monitoring these wells for VOCs on a quarterly basis (TtNUS 2002a).<br><br>Based on the RI/FS, the Navy chose to conduct "limited action" as a remedial alternative for the site to reduce exposure to contaminants in soil. This alternative uses 1) institutional controls, 2) | Based on a review of sampling data and potential exposure scenarios, past or current public health hazards are not expected at OU5.<br><br>Groundwater modeling indicates that the fenced, unnamed creek is the primary receiver of OU5 groundwater. Groundwater in the north and south of the OU discharges to the unnamed creek, which is not deep enough to sustain recreational activities. Surface water and sediment sampling shows that VOCs detected in groundwater at OU5 are not affecting creek surface water or sediment, as the only VOC detected was below its CV (TtNUS 2002a).<br><br>Residences located next to the station's southern boundary rely on deep groundwater for drinking water, which comes from wells reportedly 200 feet or deeper. Sampling results from these wells were evaluated to confirm that contaminants from OU5 had not migrated to the wells. ATSDR concluded that site-related contaminants were not impacting these wells, but that |

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| | fence surrounds the OU; only station personnel have site access (TtNUS 2002a). | contamination.<br>ODA soil samples were analyzed for VOCs, SVOCs, and RCRA metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver). FFTA samples were analyzed for VOCs and SVOCs. Also, per EPA request, BEI collected additional groundwater samples from the two wells in 1999 and 2000 and analyzed them for radium-226 (TtNUS 2002a).<br>Between 1999 and 2002, TtNUS conducted RI/FS activities. In 1999, TtNUS collected 14 groundwater, 3 surface water, 3 sediment, and 4 surface soil samples. Groundwater samples were analyzed for VOCs, SVOCs, and metals; surface water and sediment for VOCs; and surface soil for inorganics. Between 2001 and 2002, TtNUS collected a total of 11 groundwater, 1 surface water, 29 surface soil, and 21direct push technology (DPT) boring samples. Groundwater, surface water, and DPT boring samples were analyzed for VOCs; 14 soil samples near the ODA were analyzed for arsenic; and 12 soil samples by the FFTA were | monitoring, 3) warning signs, and 4) 5-year site reviews to evaluate any changes in site conditions. Because of limited site access, the RI/FS found that it was unnecessary to remove or treat on-site soil (TtNUS 2002a).<br>Based on the RI/FS, the Navy chose to remediate groundwater at the OU through 1) groundwater and surface water monitoring,<br>2) biodegradation monitoring (evaluates the amount of contaminants that are naturally breaking down),<br>3) groundwater reporting,<br>4) groundwater use restrictions, and<br>5) 5-year site reviews (TtNUS 2002a). | other industrial sources could possibly affect the wells. ATSDR finds that these drinking water wells pose *no apparent public health hazard*. ATSDR's analysis is detailed in the *Evaluation of Environmental Contamination and Exposure Pathways* section.<br>A fence surrounds the OU and only station personnel have site access. In 1998, BEI removed radiologically-contaminated soil. The groundwater at this OU is not a drinking water source. As site access is restricted and the area is not utilized, no exposures are likely to occur, and thus no adverse health effects are expected. Additionally, estimated exposure doses based on the detected soil concentrations are too low to cause adverse health effects.<br>No future public health hazards are expected as long as the site remains restricted and land use does not change. |

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| | | sampled for metals and 3 for hexavalent chromium (TtNUS 2002a). | | |
| OU6 | OU6, also referred to as PSC 52, consists of Hangar 1000 located in the north-central section of NAS Jacksonville. The Navy uses this hangar for aircraft service and repair. In the late 1960s, two underground storage tanks (USTs) were installed to store solvents used at the hangar. One UST was concrete and held 750 gallons. It was used as a solvent and water separator. The other UST was steel and held 2,000 gallons. This tank received solvents and waste oils released from other station operations, as well as overflow from the 750-gallon concrete UST (Davis 2003).<br>The Navy discontinued its use of the tanks, and in March 1994, they were removed. Monitoring results suggest that contamination may have spread from the area when the tanks were removed (Davis 2003). | In 2003, the U.S. Geological Survey (USGS) investigated contaminated groundwater movement from the former UST locations to groundwater discharge areas at NAS Jacksonville. To make remedial decisions, the Navy needed the USGS to examine the "fate and transport" of previously identified trichloroethene (TCE), dichloroethene (DCE), and vinyl chloride (VC) groundwater plumes at the hangar (Davis 2003).<br>USGS determined that groundwater at OU6 travels toward a storm sewer that drains surficial aquifer groundwater. USGS also confirmed that the TCE, DCE, and VC groundwater plumes under OU6 were moving with the groundwater. According to the USGS, the plumes have reached the storm sewer, which discharges to a small creek that flows into the St. Johns River (Davis 2003). | In addition to removing the tanks and their associated piping, the Navy also excavated visually contaminated soil in March 1994. Presently, the Navy is assessing if contaminants at OU6 could cause harm to human health (Davis 2003).<br>In January 2004, the Navy conducted interim measures that consisted of applying nano-scale iron injections to reduce groundwater contaminants. According to the Navy, it appears that the measures were successful. The Navy is currently reviewing the data analysis. The Navy is preparing a ROD that will include details on the success of the interim measures (Allen 2004). | Based on a review of available groundwater sampling data and potential exposure scenarios, no past or current public health hazards are expected from OU6. Groundwater is not used as a drinking water source.<br>Though soil sampling data were not available for OU6, "visually" contaminated soil was removed from the site in 1994. The Navy is currently addressing human health issues at OU6. According to the Navy, only groundwater is an issue at this OU (Beason 2004a).<br>Based on the available data, no future public health hazards are expected as long as land use does not change. |
| OU7 | OU7 contains PSC 46—the Defense | In 1997, HLA collected four | Based on the 2003 RI/FS, the | Based on a review of |

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| | Reutilization and Marketing Office (DRMO)—which is located across from the southwest corner of the station, on the west side of U.S. Highway 17 (Roosevelt Boulevard) (ABB-ES 1995a). The western boundary of OU7 runs parallel with the main Amtrak railroad line (HLA 1999d). This OU measures about 650 feet wide (southern border), 1,500 feet long, and 120 feet wide (northern border) (TtNUS 2003a).<br><br>In 1939, the Army began operating the DRMO as an airplane decommissioning facility (HLA 1999d as cited in TtNUS 2003a). Fluids were drained from aircraft at OU5 and then moved to the southern section of OU7. Various components were removed from aircraft and stored at different areas in the DRMO yard. Since the late 1940s, the Navy has used the site for the disposal of unneeded scrap items, supplies, and equipment. Some items have been sold to the public, such as transformers and vehicles. On a minimal basis, the DRMO will recondition some of the excess items (TtNUS 2003a).<br><br>Buildings or pavement cover all areas of the OU, except an approximate 6,000-square foot grass-covered area in the south-central section of the OU. A chain-link fence with razor wire surrounds the OU (TtNUS 2003a). Only authorized personnel are allowed on the property. | surface soil, six groundwater, five surface water, and five sediment samples (HLA 1999d).<br><br>During RI activities in 2001, TtNUS collected 17 grid-based soil, 20 biased soil, 17 soil/sediment (perimeter ditch), 6 surface water, and 6 groundwater samples (TtNUS 2003a).<br><br>During both investigations, samples were analyzed for VOCs, SVOCs, pesticides, PCBs, and metals. Also during the RI, TtNUS collected 13 soil, 7 groundwater, and 3 surface water samples and analyzed them for radiological contamination. | Navy has selected remedial alternatives for soil and groundwater at OU7. The Navy will excavate soil that was detected at levels above industrial preliminary remediation goals (PRGs). The excavated soil will be shipped to an off-site facility for disposal (TtNUS 2003a).<br><br>The Navy selected natural attenuation for groundwater remediation. This method allows contaminants to naturally break down in the environment to minimal concentrations. The Navy will also implement institutional controls to prevent future residential use of the property or on-site groundwater use (from the surficial aquifer) for drinking water. In addition, the Navy will conduct monitoring to assess any migration of contaminants in groundwater at OU7 (TtNUS 2003a). | sampling data and potential exposure scenarios, no past or current public health hazards are expected at OU7.<br><br>A chain-link fence with razor wire surrounds the entire OU area and a guarded gate restricts site access to authorized personnel. The groundwater at this OU is not used for drinking water. Since site access is restricted, no exposures are expected to occur, and thus no adverse health effects are expected.<br><br>ATSDR calculated potential exposure doses for contaminants detected in soil. If trespassing were possible, a person's potential exposure to contaminants in on-site soil would be infrequent and for short periods of time. These types of exposures are not expected to cause adverse health effects.<br><br>No future public health hazards are expected as long as the site remains restricted and land use does not change. |

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| OU8 | OU8 consists of PSC 47—the Pesticide Shop (Building 536)—situated on 1.5 acres in the west-central portion of NAS Jacksonville. The shop has been at this same location since the middle to late 1960s (ABB-ES 1995a).<br>At one time, the Naval Aviation Technical Training Center used this OU for engine cell testing. In the 1960s and 1970s, the Disease Vector Ecology and Control Center used the property for training purposes; testing of the engines took place within the bays at Building 536. Test slabs composed of brick, cinder block, and concrete were built in the southeast corner of the OU to simulate building materials (ABB-ES 1995a).<br>During the training sessions, chlordane was put on the slabs to control termites (ABB-ES 1995a). The site was also used in the past to store herbicides, pesticides, and pesticide application equipment (Spencer 1993 as cited in ABB-ES 1995a). Though most of the testing took place in the bays, allegedly some of the testing occurred next to the building's south side (ABB-ES 1995a). A chlordane spill reportedly occurred in the northwestern corner of the OU, but the size and date are unknown (Spencer 1994 as cited in ABB-ES 1995a).<br>A 6-foot high fence surrounds the pesticide facility. The fence gate is kept | In 1996, B&R collected three surface soil samples. Samples were analyzed for VOCs, SVOCs, pesticides, PCBs, and metals (B&R 1996).<br>In 1997, HLA collected 56 surface soil and 3 groundwater samples. Samples were analyzed for herbicides, VOCs, SVOCs, pesticides, PCBs, and metals (HLA 1999e). | In 1991, the Navy removed an estimated 30 55-gallon rusted drums from the southwestern corner of the OU. Reportedly, the drums did not contain any substances when they were removed; however, the drums formerly held malathion and other pesticides (Smith 1994 as cited in ABB-ES 1995a).<br>Currently, the Navy is completing a draft RI (including a draft risk assessment), and developing the FS for OU8. The Navy anticipates that the complete RI/FS will be available for the public by March 2006 (at the earliest) (Greg Roof, TtNUS engineer, personal communication, 2004 and 2005). | Based on a review of sampling data and potential exposure scenarios, no past or current public health hazards are expected at OU8.<br>A 6-foot high fence and locked gate restrict site access. The groundwater at this OU is not used as a drinking water source.<br>ATSDR calculated doses for people who were possibly exposed to the contaminants detected in soil at OU8. All potential doses based on average detections were below levels at which health effects have been observed. Therefore, even if a person illegally accessed the site, doses of contaminants would not be expected to be harmful to human health.<br>No future public health hazards are expected as long as the site remains restricted and land use does not change. |

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| | locked during non-business hours and when NAS Jacksonville personnel are not present (ABB-ES 1995a). | | | |
| *Additional PSCs at NAS Jacksonville* | | | | |
| PSC 5 | PSC 5 is the Shoreline Fill west of the Fuel Barge Dock. This PSC measures approximately 200 feet wide by 600 feet long. It is in the northeastern portion of the station and stretches along the St. Johns River shoreline (TtNUS 2003b).<br>In the 1940s, the Navy used this PSC for concrete runway debris disposal. Reportedly, the area was also used in 1945 and 1946 for the disposal of paint, solvents, paint remover, and radioactive paint. There is no current land use at PSC 5 (TtNUS 2003b).<br>PSC 5 is within the restricted flightline area, which cannot be entered without a special pass. In addition, a fence and 24-hour guarded gate control site access to this isolated area (TtNUS 2003b). | In 1985, AG&M collected one groundwater sample and analyzed it for VOCs, metals, and radioactive substances (AG&M 1985a).<br>In 1997, HLA collected nine surface soil, one subsurface soil, and four groundwater samples. Samples were analyzed for VOCs, SVOCs, metals, gross alpha, and gross beta radiation (HLA 1999f). | The 2003 RRDS document determined that the final remedy for PSC 5 was no further response action planned (NFRAP) with the implementation of current land use controls (TtNUS 2003b). | Based on a review of sampling data and potential exposure scenarios, no past or current public health hazards are expected at PSC 5.<br>The site is in an isolated area and a 24-hour guarded gate restricts all site access. There is no current land use at PSC 5 and groundwater is not a drinking water source. If a person trespassed onto the PSC and contacted on-site soil, adverse health effects would not be expected.<br>No future public health hazards are expected as long as the site remains restricted and land use does not change. |
| PSC 9 | PSC 9 is the 2-acre Old Disposal Area East of the Fuel Farm located near the St. Johns River shoreline in the northeastern section of the station (TtNUS 2003b). From 1977 to 1978, construction debris, garbage, and a small number of 55-gallon drums were disposed of at the site (Fred | In 1985, AG&M collected one groundwater and three soil samples. The groundwater sample was analyzed for VOCs, cyanide, and metals; the soil samples were analyzed for metals (AG&M 1985a). | In 1997, a radiological survey was conducted. Based on the results, 540 cubic yards of soil with elevated radiological contamination were excavated (BEI 1998 as cited in TtNUS 2003b). | Based on a review of site data and potential exposure scenarios, no past or current public health hazards are expected from PSC 9.<br>Residents do not have access to this site and contaminated |

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| | C. Hart Associates, Inc. 1983).<br>Interviews and photographs suggest that PSC 9 could have been used for disposal prior to 1977 and that unauthorized disposal took place after 1978 for an unknown period of time (ABB-ES 1995a; Wadel 1994a as cited in ABB-ES 1995a). From 1985 to 1988, organic and potentially other wastes were disposed of at the area (ABB-ES 1995a).<br>Site access is limited because of the PSC's proximity to the flightline and the vast vegetation around the area. Also, concrete rubble and bricks are built up along the shoreline (ABB-ES 1995a). | In 1987, an Endangerment Assessment Report determined that no adverse health risk was expected from PSC 9 (Geraghty & Miller 1987 as cited in TtNUS 2003b).<br>Site screening began in 1997. HLA collected six surface soil, three subsurface soil, one surface water, one sediment, and three groundwater samples. Samples were analyzed for VOCs, SVOCs, pesticides, PCBs, metals, and radionuclides. Based on these results, two additional surface soil (one background) and two more surface water samples were collected in 1999. Additional samples were analyzed for PCBs, PAHs, and mercury (HLA 1999h, cited in TtNUS 2003b). | Since humans are not currently exposed to contaminants at PSC 9, the 2003 RRDS document reported that NFRAP with land use controls was appropriate for PSC 9 (TtNUS 2003b). | soil was removed in 1997.<br>No future public health hazards are expected as long as site restrictions and land use do not change. |
| PSC 10 | PSC 10 consists of one former UST which measured about 43.5 feet long by 10.5 feet in diameter in the northeastern section of NAS Jacksonville (ABB-ES 1995a). The tank was built in 1941. It received hot stripper, mixed paints, and solvents until its removal in 1987 (GAI 1987b, Roy F. Weston 1983, and Resource Engineering undated as cited in ABB-ES 1995a).<br>A fence surrounded the tank's fill pipe | In 1994, ABB-ES collected groundwater and soil samples. Groundwater samples were analyzed for VOCs; soil samples were analyzed for lead and VOCs (ABB-ES 1994b as cited in ABB-ES 1995a). | When the tank was removed in 1987, the FDEP accepted the Navy's tank closure certification. Since no contaminants have been detected at PSC 10, the site was recommended for NFRAP in 1995 (ABB-ES 1995a). | Based on a review of site data, no contaminants were detected at PSC 10. In addition, a secured fence surrounds the tank, which restricts access. Therefore, no past, current, or future public health hazards are expected. |

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| | and a lock controlled access to the tank (Roy F. Weston 1983 as cited in ABB-ES 1995a). | | | |
| PSC 17 | PSC 17 is the Glass Bead Disposal Area located to the east of central NAS Jacksonville, about 10 to 15 feet from the St. Johns River shoreline (Geraghty & Miller, Inc. 1985a as cited in ABB-ES 1995a). Initially, this PSC only consisted of the glass bead bar, but in 1993, the entire Mulberry Cove (a section of the St. Johns River) was included in PSC 17 (HLA 1999h).<br>Glass beads were used at NADEP during blasting operations to strip coatings from various airplane parts (Geraghty & Miller, Inc. 1985a as cited in ABB-ES 1995a). Between 1965 and 1981, the used glass beads were disposed 10 to 15 feet from the shoreline. A reported 300,000 pounds of glass beads were disposed at | Between 1983 and 1985, FDEP collected 1 surface water and 1 sediment sample and AG&M collected 24 sediment samples (FDER 1983b, AG&M1985a, and AG&M 1985b as cited in ABB-ES 1995a). All samples were analyzed for metals.<br>In 1991, the city of Jacksonville collected two sediment samples that were analyzed for PCBs, pesticides, dioxins, SVOCs, and metals (City of Jacksonville 1991).<br>In 1995, BEI collected three sediment samples from Mulberry Cove and analyzed them for radiological contaminants (BEI | The closure certification in 1985 recommended that sediments in Mulberry Cove be left in place (Geraghty & Miller, Inc. 1985a as cited in ABB-ES 1995a).<br>Between 1996 and 1997, soil with highly elevated radioactive concentrations was removed. Since the contaminated sediment was generally over 15 centimeters below the surface, it was left in place (ABB-ES 1997b).<br>Based on past investigations, the soil removal, and the site screening, NFRAP was determined for PSC 17 | Based on a review of sampling data and potential exposure scenarios, no past public health hazards are expected from sediment exposure at PSC 17.<br>According to NAS Jacksonville, the water at PSC 17 is very shallow and people are not known to fish or swim here (Beason 2004b). In addition, human activities that would result in contacting river sediment are restricted at PSC 17. In fact, according to HLA, the PSC 17 area is “off-limits” to human activities (HLS 1999h). |

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| | the PSC each year. As a result, in 1983, a "glass bead bar" measuring about 15 feet long by 5 feet wide was visible in Mulberry Cove (ABB-ES 1995a).<br>A marina (Marina No. 1) and a picnic area are situated next to the cove, where Navy personnel and employees anchor their boats (ABB-ES 1995a). NAS Jacksonville personnel, military retirees, and station residents use the water at the marina for fishing and recreational activities. People are not known to fish or swim at Mulberry Cove because the water is too shallow to support these activities (Beason 2004b). | 1996 as cited in HLA 1999i).<br>In 1997, HLA collected 14 sediment and 3 surface water samples. Samples were analyzed for VOCs, SVOCs, pesticides, PCBs, and metals. In addition, five toxicity tests were conducted to assess the possible effects on marine invertebrates exposed to sediment at PSC 17 (HLA 1999i). | (Appendix A 2001). | Further, the Navy has posted signs at Mulberry Cove that warn people of potential site contamination and site restrictions (Beason 2004b). Thus, if someone went into the restricted area, any exposure to these sediments would be of minimal duration and of minimal concentration, which would not be expected to result in adverse effects.<br>Surface water and fish sampling were not conducted at PSC 17. If these data become available, ATSDR will compare any detected contaminant levels to CVs.<br>No future public health hazards are expected as long as signs remain posted, people do not swim or fish at Mulberry Cove, and site restrictions to prevent sediment-disturbing activities continue. |
| PSC 18 | PSC 18 is the Fill Area at the northeast corner of Mulberry Cove. In the late 1950s, about 1,500 cubic feet of soil contaminated with radioactive radium paint waste was removed from PSC 13—the Radium Paint Waste Disposal Pit— | In 1982, radiation measurements were taken at PSC 18 (ABB-ES 1995a). In 1985, AG&M collected one groundwater sample and analyzed it for gross alpha radioactivity (AG&M | In 1997, the contaminated area was excavated, radiological waste was disposed under the protective landfill cap at OU1, and the site was restored (ABB-ES 1998a). | Based on a review of site data, the contamination at PSC 18 was removed in 1997. Radiological contamination was not detected in the picnic areas where residents and |

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| | and discarded near Mulberry Cove. The waste was associated with stripping operations at NADEP (ABB-ES 1995a).<br>In 1993, an Occupational Health and Safety Officer at NAS Jacksonville indicated that zircon grit, which naturally contains thorium, was used for sandblasting activities at the station and could have been disposed of in this area. The disposal area is now known as PSC 18. Marina 1 is southeast of the PSC and picnic areas are situated on the west and east of PSC 18. Access to PSC 18 is unrestricted to people at NAS Jacksonville (ABB-ES 1995a). | 1985a).<br>In 1993, the Radiological Affairs Support Office (RASO) conducted a radiological investigation at PSC 18 (RASO 1993b as cited in ABB-ES 1995a). | Following the soil excavation, NFRAP was selected for PSC 18 (NAS JAX Consolidated Guide to Contaminated Sites). | station personnel would have frequented. Though contamination was detected within a few feet of the shoreline, NFRAP was selected for the site based on the removal of soil contamination and because the soil was not in areas where people were likely to be present.<br>If residents and station personnel contacted this soil, the frequency and duration of exposure would have been minimal. In addition, the Navy has posted signs at the site warning of potential contamination and to avoid certain areas. Therefore, no apparent public health hazards are expected from past, current, or future exposure to PSC 18. |
| PSC 20 | PSC 20 is the Former Solid Waste Incinerator Facility located at Building 952 close to the center of the station. The incinerator was a trial facility intended to change waste into fuel pellets. The fuel pellets were subsequently burned to produce steam to heat on-station buildings. The incinerator was tested during a 2-week period in 1980. It was | Between 1996 and 1997, B&R (1996) and HLA (1999j) collected a total of nine surface and near surface soil samples at PSC 20. Samples were analyzed for VOCs, SVOCs, pesticides, PCBs, and metals.<br>A hazardous substance release was not confirmed at PSC 20 | NFRAP was recommended since the sampling results did not confirm the release of any contaminants at the site (NAS JAX Consolidated Guide to Contaminated Sites). | Based on a review of site data and potential exposure scenarios, no past, current, or future public health hazards are expected.<br>Sampling results indicate that detected contaminant levels are similar to background levels. ATSDR estimated |

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| | redesigned and operated from 1981 to 1983 (Ford 1994 as cited in ABB-ES 1995a).<br>Reportedly, any waste that was placed in a dumpster could have been sent to the incinerator (NAS JAX Consolidated Guide to Contaminated Sites). Today, Building 952 and remnants of a concrete pad east of the building are present at PSC 20. Formerly, the incinerator and ash disposal system were located on the concrete pad (HLA 1999j). There are no barriers that restrict access to PSC 20 (ABB-ES 1995a). | because<br>(1) the SVOC levels were consistent with background levels at NAS Jacksonville,<br>(2) the pesticide levels were consistent with pesticide use for pest control at the station, and<br>(3) much higher metal concentrations would be expected from incinerator-related releases (HLA 1999j; NAS JAX Consolidated Guide to Contaminated Sites). | | doses for adults and children potentially exposed to soil at PSC 20. Based on these doses, the detected concentrations of contaminants are too low to cause adverse health effects. See the *Evaluation of Environmental Contamination and Exposure Pathways* section for more details. |
| PSC 22 | PSC 22—Fort Dix—is located south of the central portion of NAS Jacksonville in the middle of the Naval Air Station Jacksonville Golf Course (formerly known as the Casa Linda Oaks Golf Course). This PSC comprises part of a former skeet range and turnaround area (HLA 1999k).<br>The skeet range, which measured about 225 feet by 925 feet, operated from an unknown date until the early to mid-1940s (ABB-ES 1995a). A target or skeet range used the area for small arms ammunition disposal (Fred C. Hart Associates, Inc. 1983). According to the Naval Weapons Department, ammunition was released but not buried at the site. There is no evidence of disposal pits or contamination at this PSC (NAS JAX | In 1995, B&R collected two surface soil samples and analyzed them for lead (B&R 1996 as cited in HLA 1999kj). In 1997, HLA collected 10 soil samples from the former skeet range area. Samples were analyzed for VOCs and metals (HLA 1999k). | PSC 22 was part of the golf course expansion that began in 2000 and has since been completed. Soil at PSC 22 was covered and the golf course was built directly on top of the area. As a result of this expansion, surface soil exposure was largely eliminated at this PSC (HLA 1999k).<br>On October 31, 2007, the Navy will begin a RI/FS at PSC 22 (Allen 2004). | Based on a review of site data, no past, current, or future public health hazards are expected.<br>Reportedly, the contaminated soil at PSC 22 was removed during the golf course expansion. ATSDR calculated doses for people potentially exposed to contaminants detected in soil during previous investigations. Based on the average concentration levels, the contaminants are too low to cause adverse health effects. For example, even if an adult or child incidentally ingested 100 mg/day and 200 mg/day, |

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| | Consolidated Guide to Contaminated Sites).<br>The area formerly used as a skeet range is now wooded and has a jogging trail (ABB-ES 1995a). A park is located to the southeast (HLA 1999k). PSC 22 was part of the golf course expansion that began in 2000 and has since been completed (NAS JAX Consolidated Guide to Contaminated Sites). | | | respectively, of soil for 100 days a year over their lifetimes, adverse health effects would not result.<br>Therefore, no health hazards are expected to occur from exposure to soil at PSC 22.<br>Refer to the *Evaluation of Environmental Contamination and Exposure Pathways* section in this PHA for more details. |
| PSC 23 | PSC 23 is referred to as the Old Skeet Range, although a skeet range never existed at this PSC. The estimated 100 foot by 250 foot area is situated in the northeastern section of a former shooting range, which had skeet ranges and a machine gun range (ABB-ES 1995a).<br>The site was active from an unknown date until the 1940s. Cinder piles, empty drums, engine containers, polyvinyl chloride (PVC) standpipes, and a fuel UST have been found at the PSC (ABB-ES 1995a). In 1997, the former skeet range was identified to the east of the area known as PSC 23. The area was added to subsequent PSC investigations (HLA 1999l).<br>This predominantly wooded PSC is south of the central portion of NAS Jacksonville, bordered on three sides by | In 1997, HLA collected a total of 22 surface soil and 2 groundwater samples. Ten samples taken from the initial boundaries were analyzed for VOCs, SVOCs, pesticides, PCBs, and metals. Four of the samples were collected from the western portion of the expanded area; these samples were analyzed for VOCs and metals. Eight surface soil samples were collected throughout the expanded part of PSC 23 and analyzed for lead. The two groundwater samples were analyzed for VOCs and metals (HLA 1999l). | PSC 23 was part of the Naval Air Station Jacksonville Golf Course (formerly known as the Casa Linda Oaks Golf Course) expansion that began in 2000 and has since been completed. Soil at PSC 23 was covered and the golf course was built directly on top of the area. As a result, residential surface soil exposure was largely eliminated at this PSC (HLA 1999l).<br>On October 31, 2007, the Navy will begin a RI/FS at PSC 23 (Allen 2004). | Based on a review of site data, no past, current, or future public health hazards are expected. No contaminants were detected above CVs in groundwater, which is not used as a drinking water source.<br>Reportedly, the soil contamination at PSC 23 was removed during the golf course expansion. ATSDR calculated doses for people potentially exposed to detected contaminants in soil. Based on the average concentration levels, the contaminants are too low to cause adverse health effects. For example, even if an adult |

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| | the Naval Air Station Jacksonville Golf Course (formerly known as the Casa Linda Oaks Golf Course), and south of Lake Scotlis. PSC 23 was reportedly part of the 2000 golf course expansion that has since been completed (NAS JAX Consolidated Guide to Contaminated Sites). | | | or child incidentally ingested 100 mg/day and 200 mg/day, respectively, of soil for 100 days a year over their lifetimes, adverse health effects would not result.<br>Thus, no health hazards are expected to occur.<br>Refer to the *Evaluation of Environmental Contamination and Exposure Pathways* section for more details. |
| PSC 25 | PSC 25—Building H2038, the Former Radioactive Waste Storage Area—is situated in the southeastern section of the station. The plot of the former building measures 60 feet by 130 feet (ABB-ES 1995a). Between 1979 and 1982, barrels of hospital waste that contained radioactive iodine and additional isotopes were stored outside Building H2038 (NAS JAX Consolidated Guide to Contaminated Sites).<br>Building H2038 was demolished in 1987 and no evidence of the structure remains. Hospital buildings and parking lots now surround PSC 25. There is a fence on the site's eastern boundary, but pedestrians can access the site from other directions (ABB-ES 1995a). | In 1995, BEI conducted a radiological survey at PSC 25. Monitoring was performed and three soil samples were collected and analyzed for radium-226 (ABB-ES 1995a). | In 1982, the Radiological Affairs Support Office supervised the removal and disposal of 300 barrels of waste. Following the removal, the area was cleaned up and no radiological contamination was detected at the PSC (NAS JAX Consolidated Guide to Contaminated Sites).<br>In the 1995 RRDS, NFRAP was proposed for this site (ABB-ES 1995a). | Based on a review of site data and potential exposure scenarios, no past, current, or future public health hazards are expected. Hazardous wastes were removed and disposed of, the area was remediated, and sampling and monitoring indicate that no radiological contamination is present. |

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| PSC 28 | PSC 28 was mislabeled as the Ex-Fire Training Area (later identified as OU5). This PSC measures about 1 acre in the southwestern corner of the station. According to investigations, photographs, and interviews, the site was reportedly used as a waste dump. Metal debris and concrete rubble were found in the area (TtNUS 2003b).<br>PSC 28 is heavily wooded. U.S. Highway 17 borders the site to the west, and woods border the site to the north, east, and south. A dirt road bypasses PSC 28, but a locked entrance gate restricts road access. Dense vegetation surrounding the PSC also makes site entry difficult (TtNUS 2003b). | In 1985, AG&M collected one soil and one groundwater sample. The soil sample was combined from three locations and analyzed for PCBs; the groundwater sample was analyzed for VOCs and PCBs (AG&M 1985a).<br>In 1986, AG&M collected 15 soil samples and analyzed them for PCBs (Geraghty & Miller, Inc. 1986b as cited in TtNUS 2003b). In 1987, an Endangerment Assessment Report found that PSC 28 did not pose a public health or environmental risk (Geraghty & Miller, Inc. 1987 as cited in TtNUS 2003b).<br>From 1993 to 1996, HLA collected three groundwater samples and B&R collected two soil samples. Samples were analyzed for pesticides, PCBs, metals, SVOCs, and VOCs (B&R 1996; TtNUS 2003b). | The 2003 RRDS document recommended NFRAP for PSC 28 based on sampling results and because there is no human exposure to PSC 28 as it is removed from the majority of station activities and not accessible to pedestrians (TtNUS 2003b). | Based on a review of sampling data and potential exposure scenarios, no past or current public health hazards are expected.<br>Access is restricted by a locked entrance gate. If someone trespassed and contacted soil at this PSC, the exposures would be infrequent and for brief periods of time. These types of exposures would not be expected to result in harmful health effects.<br>No future public health hazards are expected as long as land use and restricted access do not change. |
| PSC 29 | PSC 29, also known as the Organic Disposal Area, is located on about 15 acres in the southwestern portion of NAS Jacksonville. Although the PSC was a designated area for organic waste (for example, grass clippings, shrubs, and wood); scrap metal, crushed drums, discolored soil, and construction debris | In 1985, AG&M collected two groundwater samples and analyzed them for VOCs, metals, and cyanide (AG&M 1985a).<br>In 1997, HLA conducted a site screening. Eight surface soil and two groundwater samples were collected and analyzed for VOCs, | In December 1998, contaminated surface soil was removed from within a 15-foot radius of the elevated detections of benzo(a)pyrene and arsenic. Confirmatory samples were conducted following the removal of the | Based on sampling data and potential exposure scenarios, no past or current public health hazards are expected.<br>ATSDR calculated past potential soil exposure doses. All doses were too low to cause harmful health effects. |

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| | were among the items found at the site in 1983. The area may have also been used as a burrow pit. According to site photographs, the area was used for disposal as early as 1959. Dumping was restricted in March 1991 (TtNUS 2003b).<br>PSC 29 is predominantly covered by tall grass and shrubs. Access to the site is by an unpaved road that was secured with a locked gate in March 1991. Residents do not have site access (TtNUS 2003b). | SVOCs, pesticides, PCBs, and metals (HLA 1999m). | soil (BEI 1999 as cited in TtNUS 2003b).<br>After the site screening, PSC 29 was selected for NFRAP with institutional controls (TtNUS 2003b). | There is no groundwater exposure as it is not used for drinking water. In 1991, a locked gate restricted site access.<br>No future health hazards are expected as long as land use does not change. |
| PSC 30 | PSC 30—Old Drum Lot—comprises about 6 acres on the southwestern section of the station in the Defense Distribution Depot. Between 1955 and 1967, an estimated 10,000 uncovered drums containing raw materials were stored at this site (ABB-ES 1995a).<br>PSC 30 is bordered to the west and south by woods; and by woods and the Public Works Materials Laydown Area to the east. A fence and paved road surrounds the south, west, and east sides of the PSC. The northern part of the PSC was paved with asphalt following a soil excavation. Weeds and gravel cover the rest of the area. Site access is restricted, and all visitors are required to sign in (ABB-ES 1995a). | In 1985, AG&M collected six soil and three groundwater samples. Soil samples were analyzed for metals. Groundwater samples were analyzed for VOCs, SVOCs, pesticides, PCBs, metals, and cyanide (AG&M 1985a).<br>In 1986, AG&M collected six soil samples and analyzed them for cadmium and lead. AG&M took two groundwater samples and analyzed them for VOCs and metals (Geraghty & Miller, Inc. 1986 as cited in ABB-ES 1995a). A 1987 report found that PSC 30 was not a health hazard (Geraghty & Miller, Inc. 1987 as cited in ABB-ES 1995a). | In the mid-1980s, an unknown amount of cadmium-contaminated soil was removed from PSC 30 (ABB-ES 1985).<br>Based on sampling data and restricted site access, NFRAP was selected for PSC 30 (NAS JAX Consolidated Guide to Contaminated Sites). Next, the Navy will complete the land use control (LUC) inventory for reporting at PSC 30 (Allen 2004). | Based on a review of sampling data and potential exposure scenarios, no past or current public health hazards are expected at PSC 30.<br>Site access is restricted. The most contaminated soil was excavated and groundwater is not a drinking water source. Additionally, contaminants detected in soil did not exceed CVs.<br>No future health hazards are likely if restricted access and land use do not change. |

| ***Site*** | ***Site Description/Waste Disposal History*** | ***Site Investigations*** | ***Corrective Activities and/or Current Status*** | ***Evaluation of Public Health Hazard*** |
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| PSC 31 | PSC 31 is the 0.33-acre Asphalt Mixing Area located within the Public Works Materials Laydown Area on the southwest side of NAS Jacksonville. The PSC consists of Building 1969 and an unpaved gravel area that surrounds the building. Building 1969 contains unlined concrete bins that were used for asphalt mixing material storage from at least 1982 to 1988 (ABB-ES 1995a).<br>A locked gate restricts access to the site—only Public Works personnel are permitted in the site area (ABB-ES 1995a). | During investigations in 1996 and 1997, B&R (1996) and HLA (1999n) collected a total of 11 surface and near surface soil samples. Samples were analyzed for VOCs, SVOCs, pesticides, PCBs, and metals. | Because of restricted site access, NFRAP with land use controls was determined appropriate for PSC 31 (TtNUS 2003b). | Based on a review of sampling data and potential exposure scenarios, no past or current public health hazards are associated with PSC 31.<br>ATSDR calculated potential doses for contaminants detected in soil above the CVs. None were high enough to cause health effects. A locked gate restricts site access and only personnel have access to the area. If a person trespassed into the PSC, adverse health effects would not be expected.<br>No future public health hazards are expected as long as land use and access restrictions do not change. |
| PSC 32 | PSC 32, Ex-Base Landfill, originally measured about 1.5 acres on the southwestern side of NAS Jacksonville (ABB-ES 1995a). The site is bordered to the north by a warehouse and its loading dock, to the east by Buildings 144 (Hazardous Waste Storage Area) and 147 (new 55-gallon drum storage), to the south by woods, and to the west by a chain-link fence (TtNUS 2003b).<br>During the 1960s, this PSC was used for the disposal of construction debris, used | In 1985, AG&M collected one groundwater sample and analyzed it for VOCs (AG&M 1985a). In 1986, AG&M took one groundwater sample and analyzed it for SVOCs (Geraghty & Miller Inc. 1986 as cited TtNUS 2003b).<br>In 1997, HLA collected seven surface soil, seven subsurface soil, and two groundwater samples. All samples were | At an unknown time, construction debris and junked cars were removed from the site. Other landfill-related material was leveled and moved south of the former landfill area (TtNUS 2003b).<br>Based on sampling data and an evaluation of exposure scenarios, NFRAP was selected for PSC 32 (TtNUS 2003b). | Based on a review of sampling data and potential exposure scenarios, no past, current, or future public health hazards are associated with PSC 32.<br>Groundwater is not used as a drinking water source. ATSDR calculated potential doses of contaminants in surface soil that exceeded CVs. The contaminant levels |

| *Site* | *Site Description/Waste Disposal History* | *Site Investigations* | *Corrective Activities and/or Current Status* | *Evaluation of Public Health Hazard* |
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| | vehicles, soil, and garbage. Though it was called a "landfill," evidently no waste was buried at the PSC. In 1990, the mound of debris was moved south from a 1.5-acre area to a 0.33-acre area. The mound measured about 300 feet long, 50 feet wide, and 5 feet high. Today, asphalt covers the original disposal area (ABB-ES 1995a).<br>Access to the site is not formally restricted, but signs detailing PSC contamination are posted. According to NAS Jacksonville's IRP manager, no one enters this PSC. She also noted that the vegetation at this PSC is very thick, which limits site access (Beason 2004a). | analyzed for VOCs, SVOCs, pesticides, PCBs, and metals (HLA 1999o). | | detected in soil at PSC 32 are too low to cause adverse health effects. |
| PSC 34 | PSC 34—Old Transformer Storage Area—is situated on the west-central portion of the station. The site contained Building 525, which measured about 240 feet by 180 feet, and was used as a transformer storage warehouse for an unknown period of time (ABB-ES 1995a).<br>In 1978, the initial Building 525 was renovated and items from the warehouse were transferred to PSC 27. In 1988, the remodeled Building 525 was torn down for the station commissary expansion. Since the former building contained a concrete floor (removed in 1988), contaminants would not have been released directly to the environment | Based on the 1983 IAS and a records search that did not locate any documentation on transformer spills, the 1995 RRDS document concluded that no hazardous wastes were present at PSC 34 (ABB-ES 1995a). | Based on the 1995 RRDS document, NFRAP was selected for this site (ABB-ES 1995a). | Based on a review of site data, no past, current, or future public health hazards are expected at PSC 34. No hazardous substances have been identified. |

| ***Site*** | ***Site Description/Waste Disposal History*** | ***Site Investigations*** | ***Corrective Activities and/or Current Status*** | ***Evaluation of Public Health Hazard*** |
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| | (ABB-ES 1995a).<br>Today, the former storage building is a new Building 525, which encompasses the station commissary and Navy Exchange Complex (ABB-ES 1995a). The entire PSC is covered by a building or pavement (NAS JAX Consolidated Guide to Contaminated Sites). | | | |
| PSC 35 | PSC 35 is the Former Temporary PCB Storage Area located northeast of the central part of the station. This PSC contains Building 480 and an unpaved fenced area that is located east of the building (ABB-ES 1995a).<br>In July 1981, EPA approved the temporary storage of PCB-containing transformers at PSC 35 (ABB-ES 1995a). One leak occurred in 1983 (NAS Jacksonville 1983 as cited in ABB-ES 1995a). By 1984, all of these transformers had been removed from the PSC. The floor of Building 480 is concrete and does not contain any floor drains (NAS JAX Consolidated Guide to Contaminated Sites). | In 1996, B&R collected one surface soil sample. It was analyzed for VOCs, SVOCs, pesticides, PCBs, and metals (B&R 1996).<br>In 1997, HLA collected four soil samples and analyzed them for PCBs (HLA 1999o). | In 1983, a leaking transformer was identified and "dry sweep" was put beneath the leak. By 1984, all transformers containing PCBs were removed (NAS Jacksonville 1983 and 1984 in ABB-ES 1995a).<br>Based on past clean up actions and sampling results, NFRAP was chosen for PSC 35 (TtNUS 2003b). | Based on a review of sampling data and potential exposure scenarios, no past, current, or future public health hazards are expected at PSC 35.<br>ATSDR calculated potential doses for contaminants detected above CVs. The estimated doses are too low to cause adverse health effects. |
| PSC 36 | PSC 36—Dewey Park—was originally identified because of its 2-acre disposal area. The PSC consists of about 65 acres across from the northwestern corner of the station, on the west side of U.S. Highway 17 (Roosevelt Boulevard) | In 1986, AG&M collected one groundwater sample and analyzed it for synthetic organic compounds (Geraghty & Miller, Inc. 1986 as cited in ABB-ES 1995a). | In 1995, the NAS Jacksonville Public Works Center excavated and removed the debris piles (ABB-ES 1995a).<br>In April 1996, a baseline investigation documented the | Based on a review of sampling data and potential exposure scenarios, no public health hazards are expected from past exposure at PSC 34.<br>Arsenic was the only |

| *Site* | *Site Description/Waste Disposal History* | *Site Investigations* | *Corrective Activities and/or Current Status* | *Evaluation of Public Health Hazard* |
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| | (ABB-ES 1995a).<br>Between 1917 and 1918, an Army camp occupied the site. The site was not used again until 1941; at that time, the Dewey Park housing project was initiated to build single- family residences for military personnel and their families. Since the houses were constructed in the World War II time period, the houses could have contained lead paint, asbestos siding/shingles, and fuel oil tanks (ABB-ES 1995a).<br>In June 1963, Dewey Park was deactivated. By October 1964, all of the homes were either relocated to NAS Jacksonville or torn down (SOUTHNAVFACENGCOM 1994 as cited in ABB-ES 1995a). After the houses were relocated or destroyed, the area was leveled and many piles of debris remained at the PSC (ABB-ES 1995a).<br>Sometime between 1985 and 1995, an archery range was established on a section of Dewey Park. Since 1996, the Navy has leased 8.13 acres of the area to the city of Jacksonville for use as a recreational park (ABB-ES 1995a). | In 1990, AG&M identified scrap metal, concrete rubble, glass, plastic, and polystyrene foam in the 2-acre disposal area (Geraghty & Miller, Inc. 1990 as cited in ABB-ES 1995a).<br>In 1991, a real estate assessment included the collection of 1 groundwater, 2 soil, and 2 surface water samples, as well as 30 soil borings (ABB-ES 1993 as cited in ABB-ES 1995a).<br>In 1993, ABB-ES identified about 20 construction debris piles during a sampling event. ABB-ES collected two soil samples and analyzed them for VOCs, SVOCs, pesticides, PCBs, metals, and cyanide. Forty-five soil samples were collected and analyzed for lead (ABB-ES 1993 as cited in ABB-ES 1995a). | debris removal and noted that proper remedial activities had occurred at PSC 36 (SOUTHNAVFACENGCOM 1996 as cited in ABB-ES 1995a). Following the debris removal, NFRAP was selected for this site (ABB-ES 1995a). | contaminant detected above its CV, but the estimated dose was too low to cause harmful health effects.<br>No public health hazards are expected from present or current exposure. Potential sources of exposure were removed when the debris piles were excavated in 1995. |
| PSC 37 | PSC 37 is the Ex-Power Barge Dock located on the southeast border of NAS Jacksonville, along the St. Johns River. According to aerial photographs, the barge operated sometime between 1954 | The 1983 IAS concluded that no explosions had occurred and that transformers stayed on the barge (TtNUS 2003b).<br>In 1991, the city of Jacksonville | NFRAP was selected for this site because sediment-disturbing activities are not permitted at PSC 37, there is no evidence that a considerable | Based on a review of sampling data and potential exposure scenarios, no past public health hazards are expected from sediment |

| ***Site*** | ***Site Description/Waste Disposal History*** | ***Site Investigations*** | ***Corrective Activities and/or Current Status*** | ***Evaluation of Public Health Hazard*** |
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| | and 1968 (TtNUS 2003b).<br>This PSC was identified because a report indicated that a transformer exploded onshore during the barge's operation. However, further investigation showed that during its operation, transformers were reportedly kept on the barge and no explosions took place (TtNUS 2003b).<br>The power barge used a wooden dock that measured about 400 feet long. The dock is no longer at PSC 37, but a concrete bulkhead is still on the shoreline. The area around the PSC is predominantly wooded and can be accessed by partially paved roads (TtNUS 2003b). The area is off-limits for all human activities and signs are posted that warn of site contamination (Beason 2004b; TtNUS 2003b). | collected two sediment samples. The samples were analyzed for PCBs, pesticides, dioxins, SVOCs, and metals (City of Jacksonville 1991).<br>A 1994 PSC reconnaissance found no evidence that a transformer was kept on shore (TtNUS 2003b).<br>In 1997, the SJRWMD collected four sediment samples near the dock. Samples were analyzed for VOCs, SVOCs, pesticides, PCBs, and metals (Durell et al. 1998; TtNUS 2003b).<br>In 1999, HLA collected three sediment samples and analyzed them for metals, PAHs, pesticides, and PCBs. Three sediment toxicity test samples were also conducted on the marine amphipod leptocheirus plumulosus (HLA 1999q). No surface water or fish sampling has been conducted (TtNUS 2003b). | release of PCB fluids occurred, and potential contamination at this PSC would not be expected to adversely impact the fish habitat in the St. Johns River (TtNUS 2003b). | exposure at PSC 37.<br>According to NAS Jacksonville, the water at PSC 37 is very shallow and people are not known to fish or swim here (Beason 2004b).<br>In addition, human activities that would result in contacting river sediment are restricted at PSC 37. In fact, according to the 2003 RRDS, the PSC 37 area is "off-limits" to human activities (TtNUS 2003b). Further, the Navy has posted signs at the PSC that warn people of potential site contamination and site restrictions (Beason 2004b). Thus, if someone went into the restricted area, any exposure to these sediments would be of minimal duration and of minimal concentration, which would not be expected to result in adverse effects.<br>Surface water and fish sampling were not conducted at PSC 37. No future public health hazards are expected as long as signs remain posted, people do not swim or fish at PSC 37, and site restrictions continue. |

| ***Site*** | ***Site Description/Waste Disposal History*** | ***Site Investigations*** | ***Corrective Activities and/or Current Status*** | ***Evaluation of Public Health Hazard*** |
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| PSC 38 | PSC 38 is the Torpedo Rework Facility (Building 327) that comprises about 2.5 acres inside the Magazine Area on the south side of the station. PSC 38 also includes Building 330 that is used for paint and hazardous material storage and Building 367 that is used for bulk waste storage (ABB-ES 1995a).<br>From the 1950s until 1977, the Torpedo Rework Facility could have been used to store atomic and nuclear weapons (ABB-ES 1995a). According to interviews, activities related to reworking torpedoes produced about one 55-gallon drum of solid waste material (for example, gloves and rags that contained otto fuel) each day (Fred C. Hart Associates, Inc. 1983).<br>The site contained two gravel pits that were used as "wet mop swab pits" (Murphy 1994 as cited in ABB-ES 1995a). These pits have been either covered or removed (ABB-ES 1995a). An 8-foot high fence surrounds the Torpedo Rework facility, and access is restricted to Navy personnel with weapons area clearance (HLA 1999q). | No otto fuel releases were documented, but one minor otto spill reportedly occurred between 1988 and 1994 (Stewart 1994 as cited in ABB-ES 1995a).<br>From 1996 to 1997, B&R (1996) and HLA (1999r) collected a total of 21 soil, 1 surface water, 2 sediment, and 2 groundwater samples. The samples were analyzed for VOCs, SVOCs, pesticides, PCBs, and metals. | On October 30, 2010, the Navy will begin a RI/FS at PSC 38 (Allen 2004). | Based on a review of sampling data and potential exposure scenarios, no past or current public health hazards are expected.<br>An 8-foot high fence surrounds the Torpedo Rework Facility and only Navy personnel with weapons clearance are permitted access to the area. Also, groundwater at PSC 38 is not used as a drinking water source. If someone were to trespass at PSC 38, the contaminant levels are too low to cause harmful health effects.<br>No future public health hazards are expected as long as site access and land use do not change. |
| PSC 39 | PSC 39—Possible Transformer Burial Area—comprises about 1.5 acres in the Defense Distribution Depot, close to NAS Jacksonville's western border. According to a former station employee, this PSC was used from 1943 to 1945 as | In 1985, AG&M drilled 27 soil borings to locate evidence of electrical gear items; none were found (AG&M 1985a).<br>In 1992, ABB-ES collected three surface soil samples and analyzed | The site was selected for NFRAP based on site screening results (TtNUS 2003b). | Based on a review of sampling data and potential exposure scenarios, no public health hazards are expected at PSC 39 in the past, current, or future. |

| ***Site*** | ***Site Description/Waste Disposal History*** | ***Site Investigations*** | ***Corrective Activities and/or Current Status*** | ***Evaluation of Public Health Hazard*** |
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| | a burial area for electrical gear items. The employee also noted that hundreds of items, including transformers, were buried in a 10-foot wide by 10-foot deep ditch during this time period (ABB-ES 1995a).<br>A 1985 verification study did not confirm the existence of a burial area at PSC 39 (AG&M 1985a). However, the presence of an approximate 100-foot long ditch was identified in aerial photographs taken between 1943 and 1959 (ABB-ES 1995a).<br>Today, the site consists of a covered woodshop, a storage shed, and an asphalt-paved storage area. Crates containing airplane parts are kept on pallets inside the paved area and in the shed (ABB-ES 1995a). Access is restricted to authorized personnel (Beason 2004a). | them for PCBs (ABB-ES 1995a).<br>In 1996, B&R collected three surface soil samples and analyzed them for VOCs, SVOCs, pesticides, PCBs, and metals (B&R 1996).<br>In 1997, HLA collected eight surface and two subsurface soil samples; these were analyzed for PCBs (HLA 1999s). | | Site access is restricted to authorized personnel. If someone trespassed onto the site, soil exposure would not result in harmful health effects. |

| ***Site*** | ***Site Description/Waste Disposal History*** | ***Site Investigations*** | ***Corrective Activities and/or Current Status*** | ***Evaluation of Public Health Hazard*** |
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| PSC 40 | PSC 40, the Ex-East Industrial Wastewater Treatment Plant (IWTP) Discharge Area, is situated on the northeastern portion of NAS Jacksonville, along the station's border. The eastern end of the main runway is just north of PSC 40 (ABB-ES 1995a).<br>The IWTP treated domestic wastewater from 1940 to 1961. In 1961, in addition to treating domestic wastewater, the IWTP started treating industrial wastewater. The industrial wastewater was associated with various substances used at the station, including paint, oil, and solvents. The plant discontinued operations in 1972 (ABB-ES 1994a as cited in ABB-ES 1995a).<br>Effluents were treated, chlorinated, and released to the St. Johns River. The PSC contains a culvert (an underground duct) that opens into a small cove on the St. Johns River. The cove is lined with heavy shrubbery, and the water in the cove is about 2 feet deep. There are no human activities permitted at PSC 40 (TtNUS 2003b). | In 1985, AG&M collected four sediment samples and analyzed them for metals (AG&M 1985a).<br>In 1991, the city of Jacksonville collected two sediment samples. The samples were analyzed for PCBs, dioxins, pesticides, SVOCs, and metals (City of Jacksonville 1991).<br>In 1995, BEI conducted a radiological survey on sediment at PSC 40 (BEI 1996 as cited in TtNUS 2003b). In 1996, B&R collected three sediment samples. Samples were analyzed for VOCs, PAHs, pesticides, and metals (B&R 1996 as cited in TtNUS 2003b).<br>In 1999, HLA collected two sediment samples and analyzed them for metals, PAHs, and pesticides. Two sediment toxicity samples were conducted on the leptocheirus plumulosus—a marine amphipod (HLA 1999t). No surface water or fish sampling has been conducted at PSC 40 (TtNUS 2003b). | NFRAP with institutional controls was selected for this site since human activities are not permitted at PSC 40 and potential contamination at this PSC would not be expected to adversely impact the fish habitat of the St. Johns River (TtNUS 2003b). | Based on a review of sampling data and potential exposure scenarios, no past public health hazards are expected from sediment exposure at PSC 40.<br>All human activities are prohibited at PSC 40 and the Navy has posted signs that warn of contamination. If someone went into the restricted area, any exposure to these sediments would be of minimal duration and of minimal concentration, which would not be expected to result in adverse effects.<br>No current or future public health hazards are expected as long as people do not swim or fish at PSC 40, site restrictions to prevent sediment-disturbing activities continue, and human activities remain "off-limits" at the PSC. |
| PSC 44 | PSC 44—Drainage Ditch west of Ajax Street—is about ½-mile long and located in the central portion of NAS Jacksonville (ABB-ES 1995a; HLA | Between 1988 and 1991, NAS Jacksonville conducted sediment sampling at PSC 44 (NAS Jacksonville 1991 as cited in | Based on site screening results, NFRAP with land use controls was chosen for PSC 44. No further action was considered | Based on sampling data and potential exposure scenarios, there are no past, current, or future public health hazards |

| ***Site*** | ***Site Description/Waste Disposal History*** | ***Site Investigations*** | ***Corrective Activities and/or Current Status*** | ***Evaluation of Public Health Hazard*** |
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| | 1999u). It consists of 1) a 20-inch storm drain line that flows east from Hangar 1000 (OU6), 2) a 5-foot by 8-foot box culvert system that joins the 20-inch storm drain line and flows south, and 3) an open-channel drain that flows about 2,000 feet south to Mulberry Cove, a section of the St. Johns River (ABB-ES 1995a).<br>Based on employee interviews, two USTs at Hangar 1000 potentially contributed to contamination at PSC 44 as a result of numerous tank overflow incidents (Robert Bates & Associates, Inc. 1988 as cited in ABB-ES 1995a). The USTs were built between the late 1960s and early 1970s and contained hydraulic fluids, waste solvents, and other contaminants. The tanks and associated drain lines have not been used since 1987 (ABB-ES 1995a).<br>Runoff from several areas, including many buildings and parking lots, as well as other drainage ditches, runs into PSC 44. The drainage ditch is accessible to anyone at NAS Jacksonville (ABB-ES 1995a). | ABB-ES 1995a).<br>In 1995, B&R collected three sediment samples and analyzed them for PAHs, pesticides, and metals (HLA 1999u).<br>In 1997 and 1998, HLA collected a total of six sediment samples. Three samples were analyzed for SVOCs, pesticides, and metals; the other three samples were analyzed only for cadmium. Because surface water movement in the ditch was dynamic in nature, site-related contaminants were more prone to detection in sediment. Therefore, surface water samples were not collected at PSC 44 (HLA 1999u). | appropriate for both current and potential future land uses (TtNUS 2003b). | expected at PSC 44.<br>ATSDR calculated doses for detected concentrations in sediment and determined that doses for people potentially exposed to PSC 44 sediment would be too low to result in harmful health effects. |
| PSC 45 | PSC 45 is the Building 200 Wash Rack Disposal Pit situated in the northern section of NAS Jacksonville, close to the flightline. The wash rack is covered and located in the northwest corner of Building 200 (the ground support | In 1991, a liquid sample taken from the pit consisted of paint stripper, paint chips, water, and oil. The analyses also detected phenol and methylene chloride in the liquid sample (Southeastern | When the pit was found in 1991, the connection between the pit and oil-water separator was plugged (ABB-ES 1995a; Wallmeyer 1991a as cited in ABB-ES 1995a). Prior to | Site data for PSC 45 are extremely limited. Though no hazardous substances have been identified at the site to date, the Navy is beginning a RI/FS at the PSC on January |

| ***Site*** | ***Site Description/Waste Disposal History*** | ***Site Investigations*** | ***Corrective Activities and/or Current Status*** | ***Evaluation of Public Health Hazard*** |
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| | equipment facility). It contains an oil-water separator and a floor drain (ABB-ES 1995a).<br>Historically, cleaning and paint stripping of ground support equipment took place in the wash rack. During an unknown time period, overflow from an oil-water separator in the wash rack entered the disposal pit (ABB-ES 1995a).<br>The disposal pit consists of a gravel-lined French drain that is about 2 feet from the wash rack's eastern wall, outside of the covered area. A large concrete lid covers the pit and an uncovered pipe protrudes about 6 inches from the lid. A small grassy area surrounds the pit. To the north is a paved parking lot (ABB-ES 1995a). Site access is restricted to authorized personnel (Beason 2004a). | Environmental Laboratories, Inc. 1991 as cited in ABB-ES 1995a).<br>To date, there is not sufficient data to identify the presence of contaminants at PSC 45 (NAS JAX Consolidated Guide to Contaminated Sites). | September 1991, wastes were removed from the pit and disposed under hazardous waste regulations (ABB-ES 1995a).<br>In 1998, the Wash Rack Disposal Pit and surrounding soil were removed (NAS JAX Consolidated Guide to Contaminated Sites).<br>On January 1, 2008, the Navy will begin a RI/FS at PSC 45 (Allen 2004). | 1, 2008. Only authorized personnel are permitted site access. Therefore, because no past or current exposures have or can occur, no adverse health effects are expected.<br>No future health hazards are expected as long as the site remains restricted and land use does not change. |
| PSC 49 | PSC 49, Commissary Battery Charging Station, is on the southwest side of the station. The PSC, also referred to as Building 27, was built as an addition to the north side of the Commissary Warehouse Building 170 (NAS JAX Consolidated Guide to Contaminated Sites).<br>In the past, forklift batteries were charged and replaced in the Building 170 area. If fluids, such as battery acid or oil, leaked during these activities, the fluids fell directly onto the shop floor. In the mid- | In 1993, two surface soil samples were collected. The samples were analyzed for nickel, selenium, silver, copper, and lead (ABB-ES 1995a; NAS JAX Consolidated Guide to Contaminated Sites). | Based on the sampling results, this site was selected for NFRAP (TtNUS 2003b). | Based on a review of site data and potential exposure scenarios, contaminant levels detected at PSC 49 are consistent with background levels at NAS Jacksonville and do not exceed CVs. Therefore, no past, current, or future public health hazards are expected.<br>Refer to the *Evaluation of Environmental Contamination and Exposure Pathways* |

| *Site* | *Site Description/Waste Disposal History* | *Site Investigations* | *Corrective Activities and/or Current Status* | *Evaluation of Public Health Hazard* |
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| | 1970s, steam washing began, which moved the fluids from the floor to the soil around the building (ABB-ES 1995a).<br>The areas to the north and east of PSC 49 are grass-covered and the area to the west is asphalt-covered; the PSC is attached to Building 170 on its south side. A road south of the site (Macon Road) provides access to PSC 49 via a paved driveway (ABB-ES 1995a). | | | section in this PHA for more details. |
| PSC 50 | PSC 50 is the East Side Waste Water Treatment Plant (WWTP) Sludge Disposal Area located on the northeastern portion of the station. From 1949 to 1972, the East Side WWTP operated a "trickling filter facility" to treat station wastewater. In 1961, the plant began to treat domestic and industrial water separately (NAS JAX Consolidated Guide to Contaminated Sites).<br>Between 1961 and 1972, a "primary clarifier" was used to remove oils and solvents through skimming and to extract paint chips through settling processes. Following chlorination, the effluent was discharged to the St. Johns River (NAS JAX Consolidated Guide to Contaminated Sites).<br>The plant was deactivated in 1972, and was torn down around 1974 (HLA 1999v). After the plant was destroyed, sludges that remained were buried in an | Prior to 1996 (date unknown), one groundwater sample was collected (ABB-ES 1997b).<br>In 1997, HLA collected 12 soil/sludge and 2 groundwater samples. Samples were analyzed for VOCs, SVOCs, pesticides, PCBs, and metals. All soil/sludge samples were analyzed as subsurface soil because they were taken from areas beneath a paved surface (HLA 1999v). | Because PSC 50 is completely covered with asphalt and only used for industrial purposes, NFRAP with implementation of land use controls was chosen for this site (TtNUS 2003b). | Based on a review of sampling data and potential exposure scenarios, no past public health hazards are expected.<br>If individuals were in this area in the past, they would not have contacted subsurface soil. The levels of contaminants present in subsurface soil are too low to have caused health effects in the past. Additionally, groundwater is not used for drinking water.<br>Today, PSC 50 is completely covered by asphalt and only used for industrial purposes. Also, as mentioned above, exposure to contaminant levels in subsurface soil would not cause harmful |

| ***Site*** | ***Site Description/Waste Disposal History*** | ***Site Investigations*** | ***Corrective Activities and/or Current Status*** | ***Evaluation of Public Health Hazard*** |
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| | on-site rectangular-shaped pit that measured about 108 feet long by 25 feet wide (HLA 1999v; NAS JAX Consolidated Guide to Contaminated Sites).<br>Today, PSC 50 is completely paved and maintains an industrial use as a parking area for fuel trucks (HLA 1999v). Site access is restricted to authorized personnel (Beason 2004a). | | | health effects. Thus, no current public health hazards are expected.<br>No future public health hazards are expected as long as the site remains covered by asphalt and land use continues to be industrial. |

**Table 2. Summary of PSCs—Reference Guide to PSCs and Current Status**

| ***PSC (OU)*** | ***Name*** | ***Do Station Residents Have Access?*** | ***Past, Current, or Future Residential Exposure?*** | ***Status*** |
|---|---|---|---|---|
| 2 (2) | Former Fire Fighter Training Area | No | No | Removal actions were completed in September 1997. An October 1998 ROD recommended 5-year site reviews, but no additional clean up was required. |
| 3 (2) | WWTP Ex-Sludge Disposal Area | No | No | See PSC 2 above. |
| 4 (2) | Pine Tree Planting Area | No | No | See PSC 2 above. |
| 5 | Shoreline Fill west of Fuel Barge Dock | No | No | No further response action planned. |
| 8 | Vacant Lot East of Fuel Farm | No | No | No further response action planned. |
| 9 | Old Disposal Area East of Fuel Farm | No | No | No further response action planned. |
| 10 | Tank 119K | No | No | No further response action planned. |
| 11 (3) | Building 101 | No | No | No further clean up action required. The 2000 ROD recommended groundwater and storm sewer water monitoring, execution and maintenance of groundwater use restrictions and land use controls, and conducting site reviews every 5 years. |

| ***PSC (OU)*** | ***Name*** | ***Do Station Residents Have Access?*** | ***Past, Current, or Future Residential Exposure?*** | ***Status*** |
|---|---|---|---|---|
| 12 (3) | Old Test Cell Building | No | No | See PSC 11 above. |
| 13 (3) | Radium Paint Sludge Disposal Area | No | No | See PSC 11 above. |
| 14 (3) | Battery Shop | No | No | See PSC 11 above. |
| 15 (3) | Solvent and Paint Sludge Disposal Pit | No | No | See PSC 11 above. |
| 16 (3) | Black Point Storm Sewer Discharge | No | No | A 2000 ROD proposed the removal of tar balls from the top 6 inches of sediment at PSC 16. |
| 17 | Glass Bead Disposal Area | Yes | According to the IRP manager, the station has no knowledge of anyone fishing and swimming here in the past or present, and the water at this PSC is too shallow to support these types of activities. Past exposures were not expected to have caused adverse health effects based on the types of exposures that were likely to occur, which would have been of minimal duration and minimal concentration. Current and future exposures are prevented because the Navy restricts all human activities at PSC 17 and signs are posted to warn people of potential contamination. No surface water or fish data were available. People are not permitted to fish or swim in this area. | No further response action planned. Currently, all human activities are restricted at PSC 17. |

| ***PSC (OU)*** | ***Name*** | ***Do Station Residents Have Access?*** | ***Past, Current, or Future Residential Exposure?*** | ***Status*** |
|---|---|---|---|---|
| 18 | Fill Area | Yes | Past exposures are possible, but contamination was not detected in areas of the PSC where people frequented. Contaminated soil was removed in 1997, preventing current and future exposures. | No further response action planned. |
| 20 | Former Solid Waste Incinerator Facility | Yes | Past, current, and future exposures are possible, but contaminant levels are too low to cause adverse health effects. The Navy determined that contaminant detections were consistent with NAS Jacksonville background levels. | No further response action planned. |
| 21 (4) | Casa Linda Lake | Yes | Past exposures were possible prior to the Navy's implementation of the catch-and-release program. If adults and children consumed 8 ounces (227 g/day) and 4 ounces (114 g/day), respectively, of fish for 50 days a year over their lifetimes, adverse health effects were not expected to have occurred. In addition, no contaminants were detected above CVs in surface water. People are not permitted to enter the lake for recreational activities or to collect golf balls, and therefore, any exposure to sediment would be unlikely. However, if sediment exposure occurred, adverse effects would not be expected. Current and future exposures are prevented through the Navy's catch-and-release program and signs posted that warn of site contamination. In addition, swimming and entering the lake for any purpose are prohibited. | As of 2003, the Navy had completed the response actions outlined in the 2000 ROD (including monitoring, institutional controls, and passive habitat controls) and the site was closed under CERCLA. |
| 22 | Fort Dix | Yes | Past, current, and future exposures are possible, | On October 31, 2007, the Navy will begin an RI/FS at |

| ***PSC (OU)*** | ***Name*** | ***Do Station Residents Have Access?*** | ***Past, Current, or Future Residential Exposure?*** | ***Status*** |
|---|---|---|---|---|
| | | | but detected levels in soil are not expected to cause adverse health effects. | PSC 22. |
| 23 | Old Skeet Range | Yes | Past, current, and future exposures are possible, but detected levels in soil are not expected to cause adverse health effects. | On October 31, 2007, the Navy will begin an RI/FS at PSC 23. |
| 25 | Building H2038, the Former Radioactive Waste Storage Area | Yes | No—no hazardous wastes have been detected. Waste barrels were removed in 1982 and no radiological "hot spots" have been detected in soil. | No further response action planned. |
| 26 (1) | Old Main Registered Disposal Area | Not currently, children used to trespass into the area before a higher fence was installed in 1991 | In the past, there was concern that children trespassed into OU1 to play on the landfill. Though the area had previously been fenced, in 1991 the Navy installed a higher 8-foot tall fence to prevent access to the landfill from neighborhood children. ATSDR calculated doses for adults and children potentially exposed to surface soil and sediment, and levels detected were too low to cause adverse health effects in children or adults exposed in the past or present to surface soil at OU1 or to sediment associated with OU1 releases. However, levels of surface water in the unnamed tributary could potentially cause harm if ingested. As noted previously, fencing has and continues to restrict access from the station housing area to the unnamed tributary and the higher fencing installed in 1991 continues to prevent people from exposure to contaminants at OU1. | A ROD was issued in 1997. As of January 1999, the Navy had completed remedial activities that included collecting light non-aqueous phase liquid [LNAPL], excavating selected sediment in the unnamed tributary and soil from outside the landfill, and installing a cap over the soil and debris at the landfill. The ROD also recommended allowing natural attenuation of groundwater, monitoring surface water and groundwater, enforcing land-use restrictions, and conducting 5-year reviews. |

| ***PSC (OU)*** | ***Name*** | ***Do Station Residents Have Access?*** | ***Past, Current, or Future Residential Exposure?*** | ***Status*** |
|---|---|---|---|---|
| 27 (1) | Ex-OCB Transformer Storage Area | See PSC 26 above. | See PSC 26 above. | See PSC 26 above. |
| 28 | Ex-Fire Training Area | No | No | No further response action planned. |
| 29 | Organic Disposal Area | No | Past exposure is possible before the site was restricted, but contaminant levels detected in soil are too low to have caused health effects. | No further response action planned. |
| 30 | Old Drum Lot | No | No | Following additional soil and groundwater sampling, NFRAP was recommended, although the decision has not been finalized. Presently, the Navy is completing its land use control (LUC) inventory for reporting on PSC 30. |
| 31 | Asphalt Mixing Area | No | No | No further response action planned. |
| 32 | Ex-Base Landfill | Yes | The IRP manager has never heard of anyone entering this site, but it is not restricted by fencing, security, or other measures. Contamination warning signs are posted at the PSC and thick vegetation also prevents site access. If someone were to enter the site, contaminant levels detected in surface soil are too low to cause adverse health effects. | No further response action planned. |
| 34 | Old Transformer Storage Area | Yes | No—hazardous wastes have not been identified. | No further response action planned. |

| ***PSC (OU)*** | ***Name*** | ***Do Station Residents Have Access?*** | ***Past, Current, or Future Residential Exposure?*** | ***Status*** |
|---|---|---|---|---|
| 35 | Former Temporary PCB Storage Area | No | No | No further response action planned. |
| 36 | Dewey Park | Yes | Past exposures (before debris piles were removed in 1995) to soil were possible, but levels were too low to cause adverse health effects. No contaminants were detected in on-site surface water samples. | No further response action planned. |
| 37 | Ex-Power Barge Dock | Yes | According to the IRP manager, the station has no knowledge of anyone fishing or swimming here in the past or present, and the water at this PSC is too shallow to support these types of activities. Past exposures were not expected to have caused adverse health effects based on the types of exposures that were likely to occur, which would be of minimal duration and minimal concentration. Current and future exposures are prevented because the Navy restricts all human activities at PSC 17 and signs are posted to warn people of potential contamination. | No further response action planned. Currently, all human activities are restricted at PSC 37. |
| 38 | Torpedo Rework Facility | No | No | On October 30, 2010, the Navy will begin an RI/FS at PSC 38. |
| 39 | Possible Transformer Burial Area | No | No | No further response action planned. |
| 40 | Ex-East Industrial | Yes | Past exposures were not expected to have caused adverse health effects. People were unlikely to | No further response action planned. Currently, all human |

| ***PSC (OU)*** | ***Name*** | ***Do Station Residents Have Access?*** | ***Past, Current, or Future Residential Exposure?*** | ***Status*** |
|---|---|---|---|---|
| | Wastewater Treatment Plant Discharge Area | | swim or conduct other recreational activities in this area of the river, and therefore, any exposures were expected to be of minimal duration and of minimal concentration. Current and future exposures are prevented because the Navy restricts all human activities at PSC 40. | activities are restricted at PSC 40. |
| 41 (2) | Domestic Waste Sludge Drying Beds | No | No | Removal actions were completed in September 1997. An October 1998 ROD recommended groundwater monitoring and 5-year site reviews, but no additional clean up was required. |
| 42 (2) | Wastewater Treatment Plant Effluent Polishing Pond | No | No | See PSC 41 above. |
| 43 (2) | Industrial Waste Sludge Drying Beds | No | No | See PSC 41 above. |
| 44 | Drainage Ditch west of Ajax Street | Yes | Exposures are possible, but contaminant levels detected in sediment are too low to cause adverse health effects. | No further response action planned. |
| 45 | Building 200 Wash Rack Disposal Pit | No | No | On January 1, 2008, the Navy will begin a RI/FS at PSC 45. |
| 46 (7) | DRMO Yard | No | No | The 2003 RI/FS determined that soil clean up should consist of excavation and off-site disposal of contaminated soils, and use of institutional controls to prevent future |

| ***PSC (OU)*** | ***Name*** | ***Do Station Residents Have Access?*** | ***Past, Current, or Future Residential Exposure?*** | ***Status*** |
|---|---|---|---|---|
| | | | | residential use of the property. For groundwater remediation, the RI/FS suggested natural attenuation, implementation of institutional controls, and monitoring. At this time, the ROD for OU7 is not completed. |
| 47 (8) | Pesticide Shop (Building 536) | No | No | Currently, the Navy is completing the draft RI (including a draft risk assessment) and developing the FS for OU8. The Navy anticipates that the complete RI/FS will be available for the public by March 2006 (at the earliest). |
| 48 (3) | Base Dry Cleaner (Building 106) | No | No | A 2000 ROD recommended the continuation of the interim removal action (IRA) system (installed in 1997) to remove contaminants from this PSC. |
| 49 | Commissary Battery Charging Station | Yes | Exposures are possible, but contaminants were not detected above CVs in soil. | No further response action planned. |
| 50 | East Side Waste Water Treatment Plant Sludge Disposal Area | No | No | No further response action planned. |
| 51 (5) | South Antenna Field Firefighting Training Area | No | No | The 2002 RI/FS proposed clean up actions for soil and groundwater. For soil, the Navy will use institutional controls, monitoring, warning signs, and 5-year site reviews. The RI/FS determined that it was unnecessary to remove or treat on-site soil because of restricted site access. To address groundwater contamination, the Navy selected groundwater and surface water monitoring, biodegradation monitoring, groundwater reporting, groundwater use restrictions, and 5-year site reviews. At |

| ***PSC (OU)*** | ***Name*** | ***Do Station Residents Have Access?*** | ***Past, Current, or Future Residential Exposure?*** | ***Status*** |
|---|---|---|---|---|
| | | | | this time, the Navy has not completed the OU5 ROD. |
| 52 (6) | Hangar 1000 | No | No—area has contaminated groundwater and is capped with concrete. People are not exposed to station groundwater because it is not used as a drinking water source. | In January 2004, the Navy conducted interim measures that consisted of applying nano-scale iron injections to reduce VOCs in groundwater. According to the Navy, it appears that the measures were successful; though, a data analysis of the results is currently underway. Presently, the Navy is preparing a ROD that will include details on the success or failure of the interim measures. |
| 54 (3) | NADEP Cooling Basin | No | No | Pending clean-up status decision. |

**Table 3. Exposure Pathways Evaluation Table**

| ***Pathway Name*** | ***Exposure Pathway Elements*** | | | | | ***Comments*** |
|---|---|---|---|---|---|---|
| | ***Source of Contamination*** | ***Environmental Medium*** | ***Point of Exposure*** | ***Route of Exposure*** | ***Potentially Exposed Population*** | |
| *Completed Exposure Pathways* | | | | | | |
| **Consumption of Groundwater/ Drinking Water** | Shallow groundwater at NAS Jacksonville is contaminated as a result of the Navy's former operations and disposal practices at the station. Contaminants present in shallow groundwater include VOCs, SVOCs, pesticides, herbicides, radionuclides, metals, and cyanide. | Groundwater | On site: None. Contaminants have only been detected in shallow groundwater (less than 60 feet deep), which NAS Jacksonville has never used as a domestic water source. The Navy has no plans to use this shallow groundwater as a drinking water source in the future.<br>Off site: Some residents to the north, south, and west of NAS Jacksonville rely on private wells for drinking water. | Ingestion and dermal contact | Residents living in neighborhoods to the north, south, and west of NAS Jacksonville | Past, Current, and Future: Though residents to the north, south, and west of NAS Jacksonville use groundwater for drinking water, no evidence suggests that these wells have been impacted by site contamination. No contamination was detected in wells to the north and west; contaminants found in wells to the south only exceeded the MCL for TCE. A filtration system was installed at this well in November 2001. The resident has refused to have the well sampled further. |

| ***Pathway Name*** | ***Exposure Pathway Elements*** | | | | | ***Comments*** |
|---|---|---|---|---|---|---|
| | ***Source of Contamination*** | ***Environmental Medium*** | ***Point of Exposure*** | ***Route of Exposure*** | ***Potentially Exposed Population*** | |
| | | | | | | ATSDR believes that the filtration system has reduced the level of TCE in this well. Thus, groundwater to the north and west poses *no public health hazard*; groundwater to the south poses *no apparent public health hazard*. |
| **Surface Soil** | Accessible areas at NAS Jacksonville that contain pesticides, PAHs, and metals. These areas include PSCs 20, 21, 22, 23, 32, 36, and 49. | Surface soil | The unrestricted areas where surface soil contamination has been identified: PSCs 20, 21, 22, 23, 32, 36, and 49. | Dermal contact and incidental ingestion | Station residents (adults and children) and their guests, NAS Jacksonville personnel, military personnel (active and retired), and authorized visitors | Past and Current:<br>ATSDR calculated potential doses to surface soil based on average concentrations detected between 1993 and 1997. Even based on extremely conservative assumptions, no potential doses to surface soil were above levels at which adverse health effects have |

| ***Pathway Name*** | ***Exposure Pathway Elements*** | | | | | ***Comments*** |
|---|---|---|---|---|---|---|
| | ***Source of Contamination*** | ***Environmental Medium*** | ***Point of Exposure*** | ***Route of Exposure*** | ***Potentially Exposed Population*** | |
| | | | | | | been observed. Therefore, ATSDR concludes that exposure to surface soil in these accessible areas poses *no apparent public health hazard*.<br>Future: As long as site restrictions remain in place and continue to prevent public access to contaminated areas at NAS Jacksonville, no future adverse health effects are expected to occur. Therefore, future exposures to surface soil in accessible areas poses *no apparent public health hazard*. |
| **Surface Water/Sediment** | Surface water bodies that potentially receive site-related contaminants that include | Surface water and sediment of St. Johns River, Casa Linda Lake, Lake Scotlis, unnamed | St. Johns River, Casa Linda Lake, Lake Scotlis, unnamed tributary to St. Johns | Dermal contact and incidental ingestion | Station residents (adults and children) and their guests, NAS Jacksonville | Past and Current: Though contaminants have been detected in Casa Linda |

| ***Pathway Name*** | ***Exposure Pathway Elements*** | | | | | ***Comments*** |
|---|---|---|---|---|---|---|
| | ***Source of Contamination*** | ***Environmental Medium*** | ***Point of Exposure*** | ***Route of Exposure*** | ***Potentially Exposed Population*** | |
| | PAHs, metals, PCBs, radionuclides, and TPH in sediment; and PCBs, pesticides, metals, VOCs, and radionuclides in surface water. | tributary to St. Johns River adjacent to OU1, and the Ortega River | River adjacent to OU1, and the Ortega River | | personnel, military personnel (active and retired), and authorized visitors who use these on-site water bodies for fishing and recreational activities; people off site who use the Ortega River for fishing and recreational activities | Lake, Lake Scotlis, the unnamed tributary adjacent to OU1, and areas of the St. Johns River near contaminated source areas (PSCs 17, 37, 40; OU3), the Navy prohibits contact with surface water and sediment in these areas. Warning signs and other controls are in place to prevent all access to these areas. Based on sampling results, if someone had incidental contact with surface water and sediment in these areas, exposures would not be expected to result in adverse health effects. Thus, this pathway poses *no apparent public health hazard*.<br>Future: No |

| *Pathway Name* | *Exposure Pathway Elements* | | | | | *Comments* |
|---|---|---|---|---|---|---|
| | *Source of Contamination* | *Environmental Medium* | *Point of Exposure* | *Route of Exposure* | *Potentially Exposed Population* | |
| | | | | | | adverse health effects are expected if the Navy continues to restrict access to the unnamed tributary next to OU1. Based on sampling results, no adverse health effects are expected from incidental exposure to contaminants in Casa Linda Lake, Lake Scotlis, the unnamed creek adjacent to OU5, and the St. Johns River. Thus, this pathway poses *no apparent public health hazard*. |
| **Consumption of Local Fish and Shellfish** | Site-related contaminants that have been released to the St. Johns River, Casa Linda Lake, Lake Scotlis, and possibly the Ortega River. These contaminants include PAHs, | Local fish and shellfish | Consumption of locally-caught fish and shellfish | Ingestion | Station residents and their guests, NAS Jacksonville personnel, military personnel (active and retired), and authorized visitors who formerly used | Current and Future: The Navy restricts consumption of fish from all on-site ponds and lakes and only allows fishing at designated areas of the St. Johns River. Sediment tests |

| ***Pathway Name*** | ***Exposure Pathway Elements*** | | | | | ***Comments*** |
|---|---|---|---|---|---|---|
| | ***Source of Contamination*** | ***Environmental Medium*** | ***Point of Exposure*** | ***Route of Exposure*** | ***Potentially Exposed Population*** | |
| | metals, pesticides, and PCBs. Also, site-related contaminants that have been detected in fish samples collected on site, which include SVOCs, pesticides, PCBs, and metals. | | | | Casa Linda Lake and Lake Scotlis for consumptive fishing (prior to catch-and-release restrictions) and who currently use the St. Johns River for consumptive fishing; possibly people who use the off-site Ortega River for fishing | suggest that fish and shellfish in the St. Johns River are not impacted by contaminants in site-related sediments. Thus, based on available data, no adverse health effects are expected from current and future consumption of fish and shellfish. This pathway poses *no apparent public health hazard*. |

**Table 4. Chemicals Detected above Comparison Values in Groundwater***

| ***Chemical*** | ***Maximum Detection*** | ***Location*** | ***ATSDR Comparison Value*** | ***Type*** |
|---|---|---|---|---|
| *Volatile Organic Compounds (values in ppb)* | | | | |
| 1,1,2-Trichloroethane | 59 | OU1 | 0.6 | CREG |
| 1,1-Dichloroethene | 150 | OU1 | 90 | C-EMEG |
| 1,2-Dichloroethane | 47 | OU1 | 0.4 | CREG |
| 1,2-Dichloroethene (mix) | 64 | OU5 | 54.75 | RBC‡ (1,2-DCE total) |
| 1,2-Dichloroethene (total) | 4,280 | OU6 | 54.75 | RBC |
| Benzene | 250 | OU1 | 0.6 | CREG |
| Chlorobenzene | 800D | OU1 | 100 | LTHA |
| Chloroethane | 62 | OU1 | 3.64 | RBC |
| Chloromethane | 4J | OU7 | 3 | LTHA |
| Cis 1,2-Dichloroethene | 110 | OU5 | 70 | LTHA |
| Methylene chloride | 1,250 | OU2 | 5 | CREG |
| Tetrachloroethene | 21 | OU1 | 10 | LTHA |
| Toluene | 470 | OU5 | 200 | I-EMEG |
| Trichloroethene | 8,710 | OU6 | 5 | MCL |
| Vinyl Chloride | 710 | OU1 | 0.03 | CREG |
| *Semi-Volatile Organic Compounds (values in ppb)* | | | | |
| 2-Methylnaphthalene | 8,000 | OU1 | 500 | C-EMEG |
| 4-Methylphenol | 427 | OU2 | 182.5 | RBC |
| Bis(2-chloroethyl)ether | 38 | OU1 | 0.03 | CREG |
| Bis(2-ethylhexyl)phthalate | 1,600J | OU1 | 4.78 | RBC |

| ***Chemical*** | ***Maximum Detection*** | ***Location*** | ***ATSDR Comparison Value*** | ***Type*** |
|---|---|---|---|---|
| Carbazole | 4 | OU1 | 3.35 | RBC |
| Dibenzofuran | 45 | OU1 | 12.17 | RBC |
| Naphthalene | 120 | OU5 | 100 | LTHA |
| Pentachlorophenol | 2 | OU7 | 0.3 | CREG |
| *Pesticides (values in ppb)* | | | | |
| 4,4'-DDD | 18 | OU8 | 0.1 | CREG |
| 4,4'-DDE | 2.5 | OU8 | 0.1 | CREG |
| 4,4'-DDT | 9 | OU8 | 0.1 | CREG |
| Aldrin | 0.68 | OU8 | 0.002 | CREG |
| Alpha-Benzenehexachloride (Alpha-BHC) | 3.2 | OU8 | 0.006 | CREG |
| Alpha-Chlordane | 11 | OU8 | 0.1 | CREG‡ (chlordane) |
| Beta- Benzenehexachloride (Beta-BHC) | 3.8 | OU8 | 0.02 | CREG |
| Delta-Benzenehexachloride (Delta-BHC) | 5.2 | OU8 | 0.006 | CREG‡ (alpha-HCH) |
| Dieldrin | 0.93 | OU8 | 0.002 | CREG |
| Endrin | 3.4 | OU8 | 3 | C-EMEG |
| Gamma-Benzenehexachloride (Gamma-BHC) | 1.3 | OU8 | 0.1 | I-EMEG |
| Gamma-Chlordane | 9 | OU8 | 0.1 | CREG‡ (chlordane) |
| Heptachlor | 1.1 | OU8 | 0.008 | CREG |
| Heptachlor Epoxide | 0.06 | OU8 | 0.004 | CREG |

| ***Chemical*** | ***Maximum Detection*** | ***Location*** | ***ATSDR Comparison Value*** | ***Type*** |
|---|---|---|---|---|
| *Herbicides (values in ppb)* | | | | |
| 2-Methyl-4-Chlorophenoxyacetic Acid (MCPA) | 2,000 | OU8 | 4 | LTHA |
| 2-(2-Methyl-4-Chlorop Henoxy)Propionic Acid (MCPP) | 6,800 | OU8 | 36.5 | RBC |
| *Metals (values in ppb)* | | | | |
| Aluminum | 449,000J | OU2 | 20,000 | I-EMEG |
| Antimony | 30.7J | OU2 | 4 | RMEG |
| Arsenic | 332 | OU8 | 0.02 | CREG |
| Barium | 2,180 | OU2 | 700 | RMEG |
| Beryllium | 25.4 | OU1 | 20 | C-EMEG |
| Cadmium | 40 | OU2 | 2 | C-EMEG |
| Chromium | 445 | OU2 | 30 | RMEG‡ (hexavalent chromium) |
| Iron | 168,000 | OU1 | 10,950 | RBC |
| Lead | 118J | OU2 | 15 | MCL |
| Manganese | 1,520J | PSC 29 | 500 | RMEG |
| Mercury | 14 | OU2 | 3 | RMEG‡ (mercuric chloride) |
| Nickel | 5,400 | OU2 | 100 | LTHA |
| Silver | 72 | OU2 | 50 | RMEG |
| Thallium | 5 | OU2 | 0.5 | LTHA |
| Vanadium | 580 | OU2 | 30 | I-EMEG |

| ***Chemical*** | ***Maximum Detection*** | ***Location*** | ***ATSDR Comparison Value*** | ***Type*** |
|---|---|---|---|---|
| *Radionuclides (values in pCi/l)* | | | | |
| Gross Alpha | 34.3 | OU7 | 15 | MCL |
| Radium 226 | 9.4 | OU7 | 5 | MCL |
| *Other Parameters (values in ppb)* | | | | |
| Cyanide | 280 | OU2 | 200 | LTHA/RMEG |

Source: ABB-ES 1992, 1994a, 1995b, 1996a, and 1998b; AG&M 1999; HLA 1999c, 1999d, 1999e, 1999f, 1999m, 1999o, 1999r, and 1999v; Davis 2003; TtNUS 2002a and TtNUS 2003b

Abbreviations:

C-EMEG—chronic environmental media evaluation guide (ATSDR)

CREG—cancer risk evaluation guide (ATSDR)

I-EMEG—intermediate environmental media evaluation guide (ATSDR)

LTHA—lifetime health advisory for drinking water (USEPA)

MCL—maximum contaminant level (USEPA)

pCi/l—picocuries per liter

ppb—parts per billion

RBC—risk-based concentration (USEPA)

RMEG—reference dose media evaluation guide (USEPA)

Qualifiers:

D—reported value is from a dilution/reanalysis of the sample

J—reported value is an estimated quantity

Note:

‡When a chemical does not have a CV or the chemical form is unknown, ATSDR uses CVs (when available) for substances that have similar chemical or radiological properties or other substances that are even more toxic. For mercury and chromium, ATSDR uses the more toxic forms for screening.

*This table excludes OU3 because groundwater at OU3 is presented in its own table.

**Table 5. Chemicals Detected above Comparison Values in Groundwater at OU3**

| ***Chemical*** | ***Maximum Detection (ppb)*** | ***Location*** | ***ATSDR Comparison Value*** | ***Type*** |
|---|---|---|---|---|
| *Volatile Organic Compounds* | | | | |
| 1,1,1-Trichloroethane | 570 | Area G | 200 | LTHA |
| 1,1,2-Trichloroethane | 9.3 | Area A | 0.6 | CREG |
| 1,1-Dichloroethene | 760 | Area G | 90 | C-EMEG |
| 1,2-Dichloroethane | 1.0 | Areas Outside of A—G | 0.4 | CREG |
| 1,2-Dichloroethene (total) | 6,200 | Area A | 54.8 | RBC |
| Benzene | 64 | Areas Outside of A—G | 0.6 | CREG |
| Bromoform | 8.8 | Area D | 4 | CREG |
| Chloromethane | 30 | Areas Outside of A—G | 3 | LTHA |
| Cis-1,2-Dichloroethene | 1,300 | Areas Outside of A—G | 70 | LTHA |
| Methylene Chloride | 35 | Areas Outside of A—G | 5 | CREG |
| Tetrachloroethene | 16,000 | Area E | 10 | LTHA |
| Trans-1,2-Dichloroethene | 520 | Areas Outside of A—G | 100 | LTHA |
| Trichloroethene | 31,000 | Area A | 5 | MCL |
| Vinyl Chloride | 1,600 | Area A | 0.03 | CREG |
| *Metals* | | | | |
| Arsenic | 23 | Area D | 0.02 | CREG |
| Iron | 32,300 | Area D | 10,950 | RBC |
| Manganese | 662 | Area D | 500 | RMEG |

Source: HLA 2000b

Abbreviations:

C-EMEG—chronic environmental media evaluation guide (ATSDR)

CREG—cancer risk evaluation guide (ATSDR)

LTHA—lifetime health advisory for drinking water (USEPA)

MCL—maximum contaminant level (USEPA)

ppb—parts per billion

RBC—risk-based concentration (USEPA)

RMEG—reference dose media evaluation guide (USEPA)

**Table 6. Chemicals Detected Above Comparison Values in Private Drinking Water Wells Immediately South of NAS Jacksonville's Southern Border**

| *Address* | *Date Sampled* | *Chemical* | *Concentration (ppb)* | *ATSDR Comparison Value* | *Type* |
|---|---|---|---|---|---|
| ***Concentrations Detected Above Comparison Values in All Private Well Samples*** | | | | | |
| 3837 Collins Road | 1/22/1992 | Arsenic | 4.2 | 0.02 | CREG |
| 3837 Collins Road | 3/11/1992 | Arsenic | 3.9 | 0.02 | CREG |
| 3837 Collins Road | 9/14/1992 | Arsenic | 4.4 | 0.02 | CREG |
| 3837 Collins Road | 6/7/1993 | Arsenic | 4.1 | 0.02 | CREG |
| 4271 Collins Road | 8/29/2001 | Arsenic | 0.092 | 0.02 | CREG |
| 8435 Malaga Avenue | 4/8/1997 | Arsenic | 0.24 | 0.02 | CREG |
| 8440 Navarra Avenue | 7/8/1997 | Arsenic | 0.15 | 0.02 | CREG |
| 8436 New York Avenue | 10/6/2003 | Arsenic | 0.109 | 0.02 | CREG |
| 8459 Plainfield Avenue | 6/30/1992 | Arsenic | 5.6 | 0.02 | CREG |
| 8440 Navarra Avenue | 7/8/1997 | Copper | 720 | 300 | IEMEG |
| 8537 Plainfield Ave | 8/31/2001 | Trichloroethene (TCE) | 5.5 | 5.5 | MCL |
| ***Maximum Concentrations Detected Above Comparison Values in Private Wells*** | | | | | |
| 8459 Plainfield Avenue | 6/30/1992 | Arsenic | 5.6 | 0.02 | CREG |
| 8440 Navarra Avenue | 7/8/1997 | Copper | 720 | 300 | IEMEG |
| 8537 Plainfield Ave | 8/31/2001 | Trichloroethene (TCE) | 5.5 | 5.5 | MCL |

Source: Florida Department of Health 2004

Abbreviations:

CREG—cancer risk evaluation guide (ATSDR) MCL—maximum contaminant level (USEPA)

I-EMEG—intermediate environmental media evaluation guide (ATSDR) ppb—parts per billion

**Table 7. All Chemicals Detected above Comparison Values in Groundwater at OU5**

| *Chemical* | *Frequency of Detections* | *Maximum Detection (ppb)* | *Contractor/ Date Sampled* | *ATSDR Comparison Value* | *Type* |
|---|---|---|---|---|---|
| *Volatile Organic Compounds (VOCs)* | | | | | |
| 1,2-Dichloroethene (mix) | 8/14 | 64 | TtNUS/1999 | 54.75 | RBC‡ (1,2-DCE total) |
| 1,2-Dichloroethene (total) | 4/35 | 120 | HLA/1999 | 54.75 | RBC |
| Benzene | 16/35 | 240 | HLA/1999 | 0.6 | CREG |
| Benzene | 23/80 | 240 | TtNUS/2001 | 0.6 | CREG |
| Benzene | 8/14 | 120 | TtNUS/1999 | 0.6 | CREG |
| Cis 1,2-Dichloroethene | 24/80 | 110 | TtNUS/2001 | 70 | LTHA |
| Toluene | 7/80 | 470 | TtNUS/2001 | 200 | I-EMEG |
| Toluene | 4/35 | 280 | HLA/1999 | 200 | I-EMEG |
| Trichloroethene | 14/80 | 78 | TtNUS/2001 | 5 | MCL |
| Trichloroethene | 9/35 | 23 | HLA/1999 | 5 | MCL |
| Vinyl chloride | 10/80 | 37.3 | TtNUS/2001 | 0.03 | CREG |
| Vinyl chloride | 10/35 | 18 | HLA/1999 | 0.03 | CREG |
| Vinyl chloride | 4/14 | 2.9 | TtNUS/1999 | 0.03 | CREG |
| *Semi-Volatile Organic Compounds (SVOCs)* | | | | | |
| Naphthalene | 22/80 | 120 | TtNUS/2001 | 100 | LTHA |
| *Metals* | | | | | |
| Antimony | 1/3 | 5.1J | HLA/1999 | 4 | RMEG |
| Arsenic | 1/3 | 7.2J | HLA/1999 | 0.02 | CREG |
| Cadmium | 2/14 | 2.9 | TtNUS/1999 | 2 | C-EMEG |

Source: HLA 1999c; TtNUS 2002a

Abbreviations:

C-EMEG—chronic environmental media evaluation guide (ATSDR)

CREG—cancer risk evaluation guide (ATSDR)

I-EMEG—intermediate environmental media evaluation guide (ATSDR)

LTHA—lifetime health advisory for drinking water (USEPA)

MCL—maximum contaminant level (USEPA)

ppb—parts per billion

RBC—risk-based concentration (USEPA)

RMEG—reference dose media evaluation guide (USEPA)

Qualifiers:

J—reported value is an estimated quantity

Note:

‡When a chemical does not have a CV or the chemical form is unknown, ATSDR uses CVs (when available) for substances that have similar chemical or radiological properties or other substances that are even more toxic.

**Table 8. Chemicals Detected above Comparison Values in Site-Wide Surface Soil**

| ***Chemical*** | ***Maximum Detection*** | ***Location*** | ***ATSDR Comparison Value*** | ***Type*** |
|---|---|---|---|---|
| *Semi-Volatile Organic Compounds (values in ppm)* | | | | |
| Benzo(a)anthracene | 4.7 | OU7 | 0.875 | RBC |
| Benzo(a)pyrene | 4.3 | OU7 | 0.1 | CREG |
| Benzo(b)fluoranthene | 8.6 | OU7 | 0.875 | RBC |
| Bis(2-ethylhexyl)phthalate | 46 | PSC 35 | 45.6 | RBC |
| Dibenz(a,h)anthracene | 1.4 | OU7 | 0.087 | RBC |
| Indeno(1,2,3-cd)pyrene | 2.8 | OU7 | 0.875 | RBC |
| N-Nitroso-di-n-propylamine | 0.108 | OU8 | 0.1 | CREG |
| *Herbicides (values in ppm)* | | | | |
| 2-Methyl-4-Chlorophenoxyacetic Acid (MCPA) | 4,600 | OU8 | 30 | RMEG |
| 2-(2-Methyl-4-Chlorophenoxy) Propionic Acid (MCPP) | 320 | OU8 | 78 | RBC |
| *Pesticides (values in ppm)* | | | | |
| 4,4'-DDD | 3,100 | OU8 | 3 | CREG |
| 4,4'-DDE | 410 | OU8 | 2 | CREG |
| 4,4'-DDT | 12,000 | OU8 | 2 | CREG |
| Aldrin | 4.5 | OU8 | 0.04 | CREG |
| Alpha-Benzenehexachloride (Alpha-BHC) | 61 | OU8 | 0.1 | CREG |
| Alpha-Chlordane | 280 | OU8 | 2 | CREG‡ (chlordane) |
| Beta-Benzenehexachloride (Beta-BHC) | 23.6 | OU8 | 0.4 | CREG‡ (delta-HCH) |

| ***Chemical*** | ***Maximum Detection*** | ***Location*** | ***ATSDR Comparison Value*** | ***Type*** |
|---|---|---|---|---|
| Delta-Benzenehexachloride (Delta-BHC) | 77 | OU8 | 0.1 | CREG‡ (alpha-HCH) |
| Dieldrin | 77 | OU8 | 0.04 | CREG |
| Endrin | 94 | OU8 | 20 | C-EMEG |
| Gamma-Benzenehexachloride (Gamma-BHC/Lindane) | 0.65 | OU8 | 0.5 | I-EMEG |
| Gamma-Chlordane | 310 | OU8 | 2 | CREG‡ (chlordane) |
| Heptachlor | 12 | OU8 | 0.2 | CREG |
| Heptachlor Epoxide | 4.2 | OU8 | 0.08 | CREG |
| *Polychlorinated Biphenyls (PCBs)(values in ppm)* | | | | |
| Aroclor-1254 | 3.6 | OU1 | 1 | C-EMEG |
| Aroclor-1260 | 15.5 | OU1 | 0.32 | RBC |
| *Metals (values in ppm)* | | | | |
| Aluminum | 204,000B | OU7 | 100000 | I-EMEG |
| Antimony | 70 | OU2 | 20 | RMEG |
| Arsenic | 1,570 | OU8 | 0.5 | CREG |
| Barium | 4,350 | PSC 38 | 4000 | RMEG |
| Beryllium | 1,347B | OU7 | 100 | C-EMEG |
| Cadmium | 254B | OU7 | 10 | C-EMEG |
| Chromium | 21,000 | PSC 38 | 200 | RMEG‡ (hexavalent chromium) |
| Copper | 24,300B | OU7 | 2000 | I-EMEG |
| Iron | 86,000B | OU7 | 23464 | RBC |

| ***Chemical*** | ***Maximum Detection*** | ***Location*** | ***ATSDR Comparison Value*** | ***Type*** |
|---|---|---|---|---|
| Lead | 4,840 | OU7 | 400 | SSL |
| Nickel | 1,200B | OU7 | 1000 | RMEG |
| Zinc | 39,700 | PSC 38 | 20000 | C-EMEG |
| *Radionuclides (values in bg kg$^{-1}$)** | | | | |
| Radium-226 | 360 | OU7 | 6.1 | NCRP No. 129 |
| Total Radium | 364 | OU7 | 6.1 | NCRP No. 129 |

Source: ABB-ES 1994a, 1995a, 1995b, 1996a, 1998b; AG&M 1999; B&R 1996; HLA 1999a—g, j—p, r—s, and 2000b; TtNUS 2002a, 2003a, and 2003b

Abbreviations:

C-EMEG—chronic environmental media evaluation guide (ATSDR)

CREG—cancer risk evaluation guide (ATSDR)

I-EMEG—intermediate environmental media evaluation guide (ATSDR)

bg kg—becquerel per kilogram

NCRP—National Council on Radiation Protection and Measurements

ppm—parts per million

RBC—risk-based concentration (USEPA); RBCs for residential soil were used for this analysis

RMEG—reference dose media evaluation guide (USEPA)

SSL—soil screening level (USEPA)

Qualifiers:

B—These samples are from a biased sample effort during the RI/FS.

Notes:

‡When a chemical does not have a CV or the chemical form is unknown, ATSDR uses CVs (when available) for substances that have similar chemical or radiological properties or other substances that are even more toxic. For chromium, ATSDR uses the more toxic form for screening.

*For radionuclides detected in soil, ATSDR compared the maximum values in picocuries per gram (pCi/g) and converted these values to bg kg-1 so that they could be compared to the soil screening limits established by the National Council on Radiation Protection and Measurements (NCRP)(NCRP 1999).

**Table 9. Chemicals Detected above Comparison Values in Surface Soil—Unrestricted Areas**

| ***Chemical*** | ***Maximum Detection (ppm)*** | ***Location*** | ***ATSDR Comparison Value*** | ***Type*** |
|---|---|---|---|---|
| *Pesticides* | | | | |
| Aldrin | 0.17 | PSC 20 | 0.04 | CREG |
| Aroclor-1260 | 3.5 | PSC 20 | 0.32 | RBC |
| *Semi-Volatile Organic Compounds (SVOCs)* | | | | |
| Benzo(a)anthracene | 2.8 | PSC 20 | 0.875 | RBC |
| Benzo(a)pyrene | 1.4 | PSC 20 | 0.1 | CREG |
| Benzo(b)fluoranthene | 2.2 | PSC 20 | 0.875 | RBC |
| *Metals* | | | | |
| Antimony | 41.9 | PSC 23 | 20 | RMEG |
| Arsenic | 4.7 | PSC 20 | 0.5 | CREG |
| Cadmium | 13.2 | PSC 20 | 10 | C-EMEG |
| Lead | 3970 | PSC 22 | 400 | SSL |

Source: ABB-ES 1993 as cited in ABB-ES 1995a; B&R 1996; HLA 1999j, k, l, and o

Abbreviations:

C-EMEG—chronic environmental media evaluation guide (ATSDR)

CREG—cancer risk evaluation guide (ATSDR)

ppm—parts per million

RBC—risk-based concentration (USEPA); RBCs for residential soil were used for this analysis

RMEG—reference dose media evaluation guide (USEPA)

SSL—soil screening level (USEPA)

**Table 10. Chemicals Detected above Comparison Values in the St. Johns River**

| ***Chemical*** | ***Maximum Detection*** | ***Location*** | ***ATSDR Comparison Value*** | ***Type*** |
|---|---|---|---|---|
| **Surface Water** (values presented in ppb) | | | | |
| *Polychlorinated Biphenyls (PCBs)* | | | | |
| Aroclor-1254 | 0.34J | PSC 17 | 0.2 | C-EMEG |
| *Pesticides* | | | | |
| Delta-benzenehexachloride (delta-BHC) | 0.0064J | PSC 17 | 0.006 | CREG‡ (alpha-HCH) |
| *Metals* | | | | |
| Thallium | 10.9 | OU3 | 0.5 | LTHA |
| **Sediment** (values presented in ppm) | | | | |
| *Semi-Volatile Organic Compounds (SVOCs)* | | | | |
| Benzo(a)anthracene | 1.8 | OU3 | 0.875 | RBC |
| Benzo(a)pyrene | 3.0 | OU3 | 0.1 | CREG |
| Benzo(b)fluoranthene | 2.3 | OU3 | 0.875 | RBC |
| Benzo(e)pyrene | 0.281 | PSC 37 | 0.1 | CREG‡ (benzo(a)pyrene) |
| Dibenz(a,h)anthracene | 0.74 | OU3 | 0.087 | RBC |
| Indeno(1,2,3-cd)pyrene | 1.6 | OU3 | 0.875 | RBC |
| Perylene | 0.313 | PSC 37 | 0.1 | CREG‡ (benzo(a)pyrene) |
| *Metals* | | | | |
| Arsenic | 12.9A | OU3 | 0.5 | CREG |
| Iron | 37,400 | PSC 17 | 23,464 | RBC |

| ***Chemical*** | ***Maximum Detection*** | ***Location*** | ***ATSDR Comparison Value*** | ***Type*** |
|---|---|---|---|---|
| Thallium | 6.3J | PSC 37 | 5.48 | RBC |

Source: City of Jacksonville 1991; Durrell et al. 1998; HLA 1999k, 1999q, and 2000b

Abbreviations:

C-EMEG—chronic environmental media evaluation guide (ATSDR)

CREG—cancer risk evaluation guide (ATSDR)

LTHA—lifetime health advisory for drinking water (USEPA)

ppb—parts per billion

ppm—parts per million

RBC—risk-based concentration (USEPA); RBCs for residential soil were used for this analysis

Qualifiers:

J—reported concentration is an estimated quantity

A—concentration is the average of both the sample and the field duplicate

Note: ‡When a chemical does not have a CV or the chemical form is unknown, ATSDR uses CVs (when available) for substances that have similar chemical or radiological properties or other substances that are even more toxic.

**Table 11. Chemicals Detected above Comparison Values in Casa Linda Lake Sediment**

| ***Chemical*** | ***Maximum Detection (ppm)*** | ***ATSDR Comparison Value*** | ***Type*** |
|---|---|---|---|
| *Semi-Volatile Organic Compounds (SVOCs)* | | | |
| Benzo(a)anthracene | 1.2 | 0.875 | RBC |
| Benzo(a)pyrene | 1.5 | 0.1 | CREG |
| Benzo(b)fluoranthene | 1.9J | 0.875 | RBC |
| Indeno(1,2,3-cd)pyrene | 0.97J | 0.875 | RBC |
| *Metals* | | | |
| Arsenic | 208 | 0.5 | CREG |
| Iron | 63,300 | 23,464 | RBC |
| Lead | 691 | 400 | SSL |

Source: AG&M 1999

Abbreviations:

CREG—cancer risk evaluation guide (ATSDR)

ppm—parts per million

RBC—risk-based concentration (USEPA); RBCs for residential soil were used for this analysis

SSL—soil screening level (USEPA)

Qualifiers**:**

J—estimated concentration

Note:

Samples presented in this table include samples analyzed in the 1999 RI/FS for OU4—AG&M samples collected in 1997 and samples collected in 1993 for the *Final Report on An Electroshocking Fisheries Investigation in Three Water Bodies on Naval Air Station, Jacksonville, Florida*.

**Table 12. Chemicals Detected above Comparison Values in Casa Linda Lake Fish**

| ***Chemical*** | ***Maximum Detection (ppm)*** | ***Average (ppm)*** | ***Description of Sample*** | ***ATSDR Comparison Value*** | ***Type*** |
|---|---|---|---|---|---|
| *Semi-Volatile Organic Compounds (SVOCs)* | | | | | |
| 4-Methylphenol | 14.0 | 14.0 | Fish Filet | 6.75926 | RBC |
| *Pesticides* | | | | | |
| 4,4'-DDD | 0.03J | 0.03 | Fish Liver/Gonad | 0.01314 | RBC |
| 4,4'-DDE | 0.85D | 0.41 | Fish Liver/Gonad | 0.00928 | RBC |
| Aldrin | 0.007 | 0.007 | Whole Fish | 0.00019 | RBC |
| Alpha-BHC | 0.002 | 0.002 | Whole Fish | 0.00050 | RBC |
| Alpha-Chlordane | 0.03D | 0.016 | Fish Carcass | 0.00901 | RBC‡ (chlordane) |
| *Polychlorinated Biphenyls (PCBs)* | | | | | |
| Aroclor-1254 | 2.8D | 1.327 | Fish Liver/Gonad | 0.00158 | RBC |
| Aroclor-1260 | 0.584D | 0.542 | Whole Fish | 0.00158 | RBC |
| *Metals* | | | | | |
| Arsenic | 0.953 | 0.903 | Whole Fish | 0.00210 | RBC |
| Mercury | 0.142 | 0.142 | Fish Filet | 0.135 | RBC‡ (methylmercury) |
| Thallium | 1.19 | 1.091 | Whole Fish | 0.09463 | RBC |

Source: AG&M 1999

Abbreviations:

RBC—risk-based concentration (USEPA)

Qualifiers:

D—diluted sample

J—estimated concentration

Notes:

Samples presented in this table include samples analyzed in the 1999 RI/FS for OU4—AG&M samples collected in 1997 and samples collected in 1993 for the *Final Report on An Electroshocking Fisheries Investigation in Three Water Bodies on Naval Air Station, Jacksonville, Florida.*

‡When a chemical does not have a CV or the chemical form is unknown, ATSDR uses CVs (when available) for substances that have similar chemical or radiological properties or other substances that are even more toxic. In its evaluation of fish, ATSDR uses methylmercury for mercury.

**Table 13. Chemicals Detected above Comparison Values in Lake Scotlis Fish**

| ***Chemical*** | ***Maximum Detection (ppm)*** | ***Description of Sample*** | ***Comparison Value*** | ***Type*** |
|---|---|---|---|---|
| *Pesticides* | | | | |
| Heptachlor | 0.0036DJ | Whole Fish | 0.0007 | RBC |
| Heptachlor Epoxide | 0.0026DJ | Whole Fish | 0.00035 | RBC |
| *Polychlorinated Biphenyls (PCBs)* | | | | |
| Aroclor-1254 | 0.198DJ | Fish Filet | 0.00158 | RBC |
| Aroclor-1260 | 0.388D | Whole Fish | 0.00158 | RBC |
| *Metals* | | | | |
| Antimony | 1.66 | Whole Fish | 0.540 | RBC |
| Mercury | 0.341 | Fish Filet | 0.135 | RBC‡ (methylmercury) |

Source: AG&M 1999

Abbreviations:

RBC—risk-based concentration (USEPA)

Qualifiers:

D—diluted sample

J—estimated concentration

Notes:

Samples presented in this table were collected during remedial investigations in 1997.

‡When a chemical does not have a CV or the chemical form is unknown, ATSDR uses CVs (when available) for substances that have similar chemical or radiological properties or other substances that are even more toxic. In its evaluation of fish, ATSDR uses methylmercury for mercury.